

INSTRUCTION BOOK

MODEL 6003

IMPORTANT SAFETY INSTRUCTIONS

Your Elna model 6003 sewing machine is designed and constructed for HOUSEHOLD use only. Read all instructions before using this sewing machine.

DANGER – To reduce the risk of electrical shock:

1. Your sewing machine should never be left unattended when plugged in. Always unplug the machine from the electrical outlet immediately after using and before cleaning.
2. Always unplug before replacing light bulb. Replace bulb with same type rated 13.2 Volts D.C. 3 watts.
3. Do not reach for the machine if it has fallen into water. Unplug immediately.
4. Do not place or store machine where it can fall or be pulled into a tub or sink. Do not place it in or drop it into water or other liquid.

WARNING – To reduce the risk of burns, fire, electrical shock or injury:

1. Do not allow the machine to be used as a toy. Supervision is necessary when this machine is used by or near children.
2. Use this machine only for its intended use as described in this manual. Use only attachments recommended by the manufacturer as described in this manual.
3. Never operate this machine if it has a damaged cord or plug, is not working properly, has been dropped or damaged, or dropped into water. Return the machine to the nearest authorized dealer or service center for examination, repair, electrical or mechanical adjustment.
4. This machine is equipped with a special connection cord which, if damaged, must be replaced by an identical cord. This can be obtained from your dealer.
5. Never operate the machine with any air opening blocked. Keep ventilation openings of the sewing machine and foot control free from accumulation of lint, dust and fibers.
6. Never drop or insert any object into any opening.
7. Do not use outdoors.
8. Do not operate where aerosol (spray) products are being used or where oxygen is being administered.
9. To disconnect, turn machine off, then remove plug from outlet.
10. Do not unplug by pulling on cord. To unplug, grasp the plug, not the cord.
11. Keep fingers away from all moving parts. Special care should be used around the sewing machine needle.
12. Always use the proper needle plate. The wrong plate can cause the needle to break.
13. Do not use bent needles.
14. Do not pull or push fabric while stitching. It may deflect the needle causing it to break.
15. Switch the machine off when making any adjustment in the needle area, such as threading needle, changing needle, threading bobbin, changing presser foot, etc.
16. Always unplug the sewing machine from the electrical outlet when removing covers, lubricating or when making any other servicing adjustments mentioned in the instruction manual.

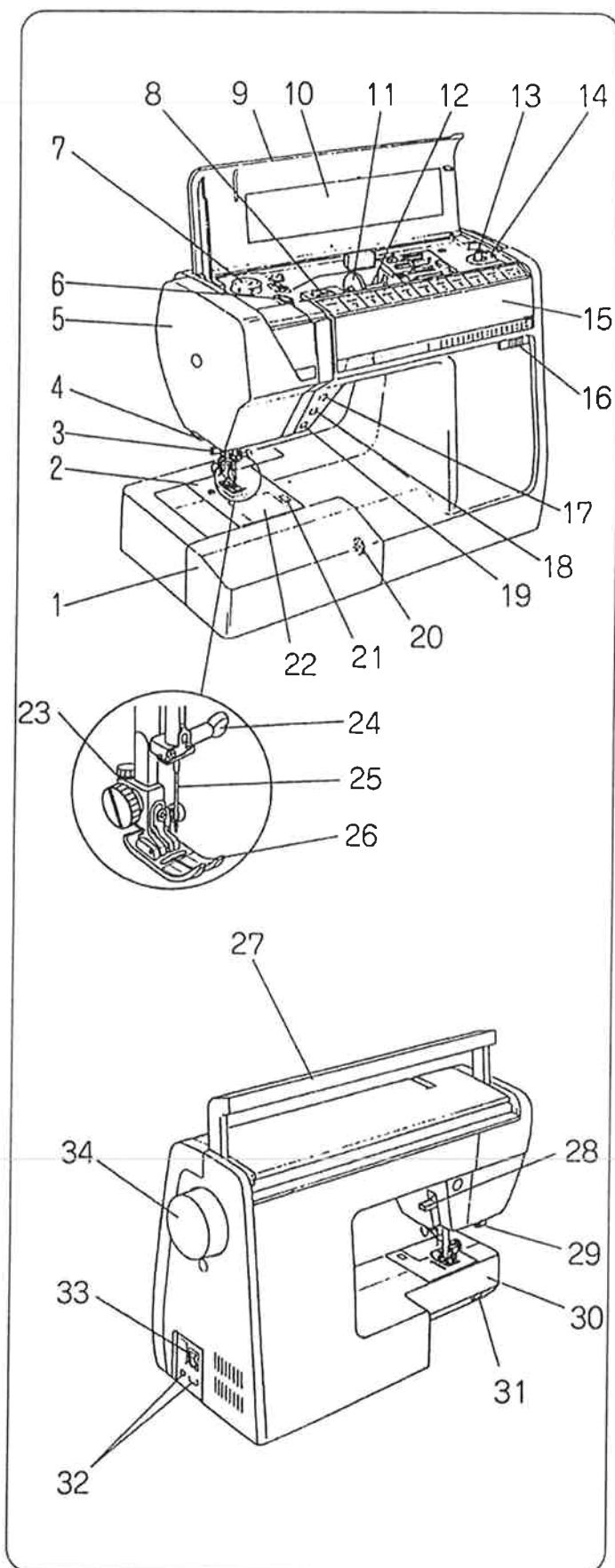
SAVE THESE INSTRUCTIONS

IMPORTANT

Be sure to keep machine away from static electricity, heat sources, humidity and direct sunlight. When using your sewing machine the first few times, place waste fabric under the presser foot and run the machine without thread for a few minutes. Wipe away excess oil.

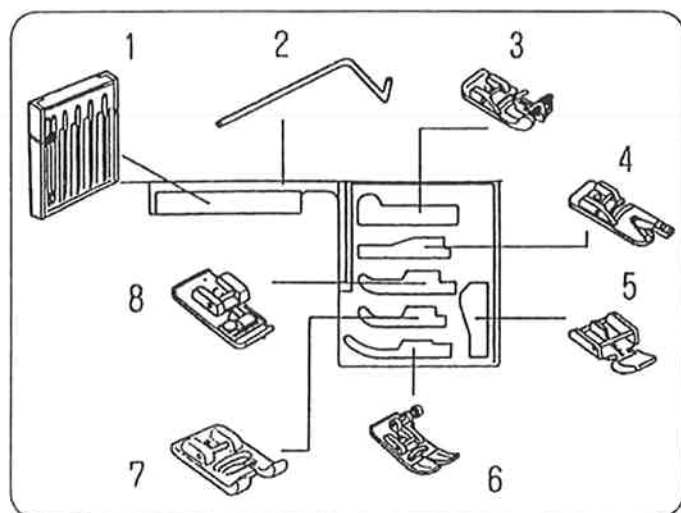
TABLE OF CONTENTS

Names of Parts	2	Smocking	36
Accessory Storage Compartment	3	Decorative Satin Stitches	37
Foot Pressure Dial	4	Scallop Edges	37
Controlling Sewing Speed	4	Applique	37
Using the Fine Adjustment Dial	4	Darning	38
Adjusting the Needle Thread Tension	5	How to Program Decorative Stitches	39
How to Drop the Feed Dog	6	• Single Motifs	39
Additional Presser Foot Clearance	6	• Combining Motifs	39
Attaching and Removing Presser Feet	6	• Combining Motifs with Mirror Image	40
Attaching and Removing the Shank	6	Care of Your Machine	41
Changing Needles	7	Troubleshooting	42-43
Sewing on Heavy Fabrics	7		
Seam Allowance Lines	8		
Quilt Guide	8		
Connecting Machine to Power Supply	9		
Main Function of Keys	10-11		
Winding the Bobbin	12		
Inserting the Bobbin	13		
Threading the Machine	14		
• Automatic Needle Threader	15		
• Drawing up the Bobbin Thread	16		
Choosing Your Needle and Thread	17		
Straight Stitch	18		
• Starting to Sew	18		
• Changing Sewing Direction	18		
• Finishing Off a Seam	18		
• Adjusting Stitch Length Manually	19		
• Variable Needle Positions	19		
Rolled Hem	20		
Zipper Insertion	21-22		
Twin Needle Hem	23		
Other Forms of the Straight Stitch	24		
Zigzag Stitch	25		
Whip and Roll Hem	26		
Satin Stitch Applique	26		
Overcast Stitches	27		
• Zigzag Stitch	27		
• Multiple Zigzag	27		
• Super Overlock Stitch	27		
• Super Stretch Stitch	27		
Buttonhole Variations	28		
• Sensor Buttonholes	28-30		
• Keyhole Buttonhole	31		
• Classic Automatic Buttonhole (BH1)	32		
• Corded Buttonhole	33		
How to Sew on a Button	34		
Blind Hem Stitch	35		
Shell Stitch	36		
Patchwork	36		



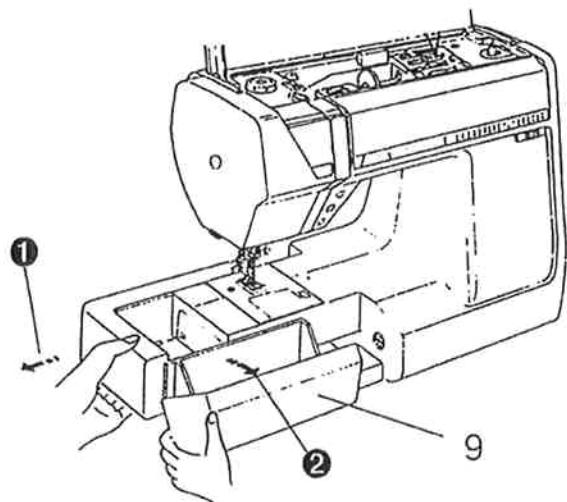
Names of Parts

1. Extension table (Accessory box)
2. Needle plate
3. Needle threader
4. Thread cutter
5. Face plate
6. Thread take-up lever
7. Foot pressure dial
8. Thread tension dial
9. Top cover
10. Stitch pattern chart
11. Spool holder
12. Spool pin
13. Bobbin winder spindle
14. Bobbin winder stopper
15. Front cover
16. Speed control lever
17. Up/down needle key
18. Auto-lock key
19. Reverse key
20. Fine adjustment dial
21. Bobbin cover plate release button
22. Bobbin cover plate
23. Shank
24. Needle clamp screw
25. Needle
26. Presser foot
27. Carrying handle
28. Presser foot lever
29. Buttonhole lever
30. Free arm
31. Feed dog lever
32. Machine sockets
33. Power switch
34. Flywheel



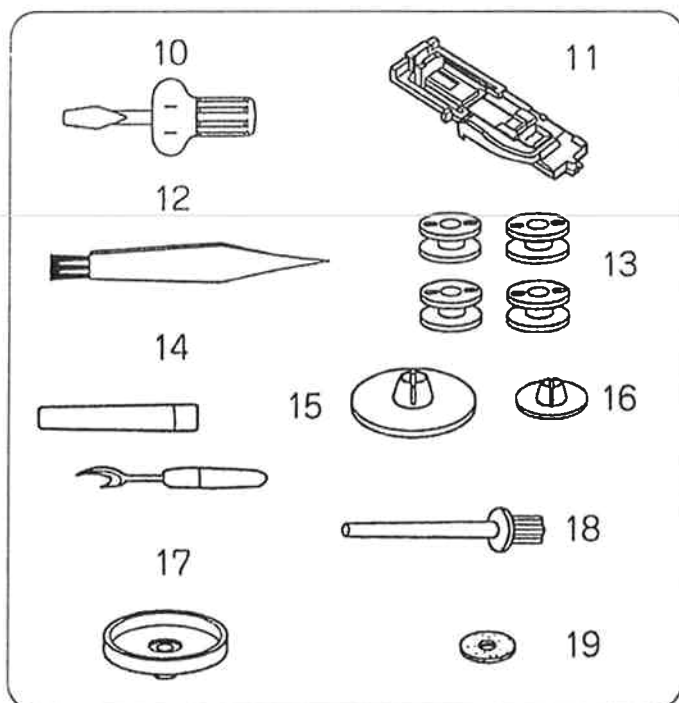
Accessory Storage Compartment

1. Set of needles
2. Quilt guide
3. G: Blind hem foot
4. D: Hemmer foot
5. E: Zipper foot
6. A: Metal foot
7. F: Satin stitch foot
8. C: Overlock foot

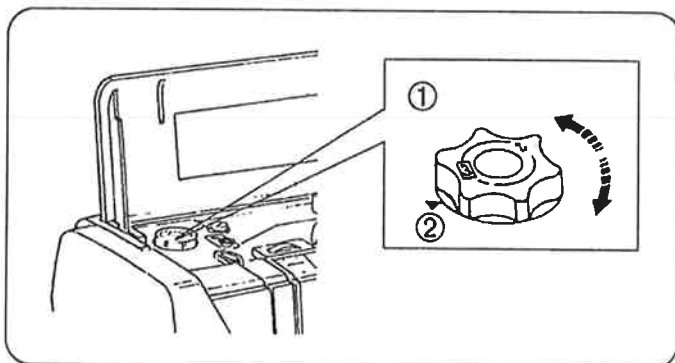


9. Extension table

- ❶ Pull the extension table away from the machine to expose the free arm. (See illustration.)
- ❷ The lid of the accessory storage box lifts open toward you. Sewing accessories are conveniently located in the box.



10. Screwdriver
11. R: Automatic buttonhole foot
12. Lint brush
13. Bobbins
14. Seam ripper
15. Large spool holder
16. Small spool holder
17. Spool stand
18. Additional spool pin
19. Spool pin felt

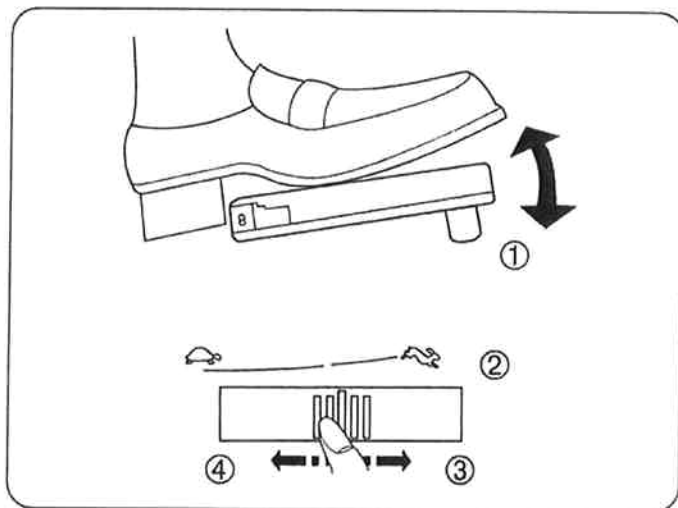


Foot Pressure Dial

The foot pressure dial should be set at "3" for regular sewing. Reduce the pressure to "2" for applique, cutwork, drawn work, basting and embroidery.

Velours and knits with a lot of stretch may require a "1" setting.

- ① Foot pressure dial
- ② Setting mark



Controlling Sewing Speed

Sewing speed can be varied with the foot control. The harder you press on the foot control, the faster the machine runs. The maximum sewing speed can be varied by sliding the speed control lever. For a faster speed, slide it to the right; for a slower speed, slide it to the left.

- ① Foot control
- ② Speed control lever
- ③ High speed
- ④ Low speed

Using the Fine Adjustment Dial

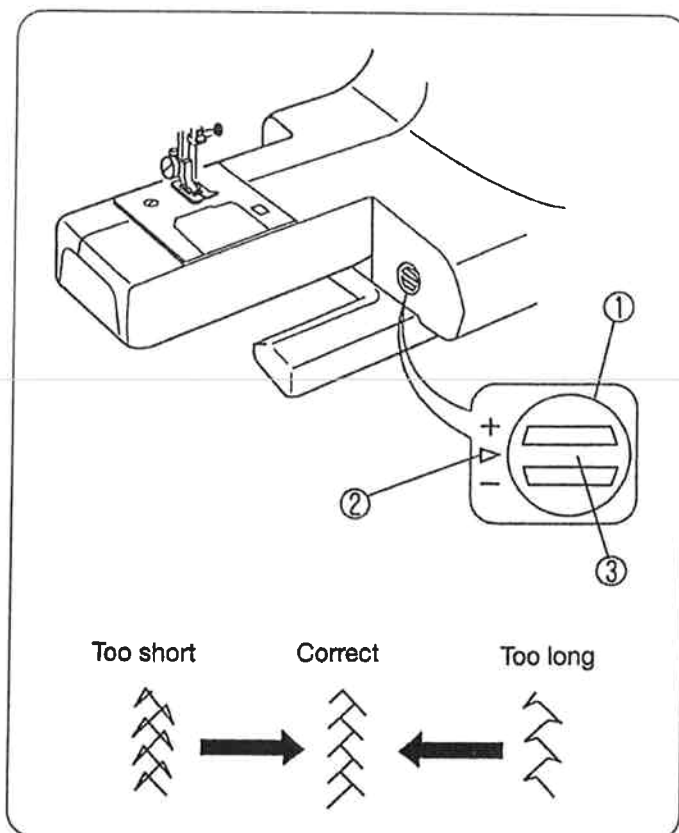
Choice of fabrics and threads may affect the stitch formation. The fine adjustment dial may be used to either lengthen or shorten the stitch.

- ① Fine adjustment dial
- ② Standard mark
- ③ Setting mark

To fine tune the stitch, use a screwdriver to move the setting mark.

If stitches are too short, correct by turning the dial in the direction of "+".

If stitches are too long, correct by turning the dial in the direction of "-".



Adjusting the Needle Thread Tension

• Choosing the Correct Tension

Straight Stitch

The ideal straight stitch will have threads locked between the two layers of fabric, as shown left (magnified to show detail).

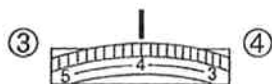
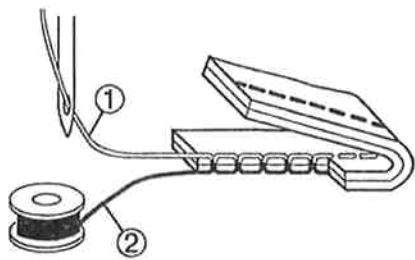
If you look at the top and bottom of the stitch, you will notice that there are no gaps; each stitch is smooth and even.

When adjusting needle thread tension, the higher the number, the tighter the needle thread.

Results depend on:

- stiffness and thickness of fabric
- number of fabric layers
- type of stitch

- ① Needle thread (Top thread)
- ② Bobbin thread (Bottom thread)
- ③ Higher numbers (Tighten)
- ④ Lower numbers (Loosen)

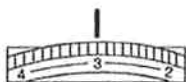
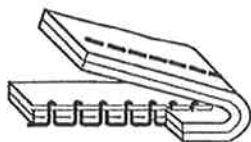


• Tension is too tight

The bobbin thread shows through on the top side of the fabric and it will feel bumpy.

Turn the dial to the left to loosen the needle thread tension.

Solution: Lower numbers (Loosen)



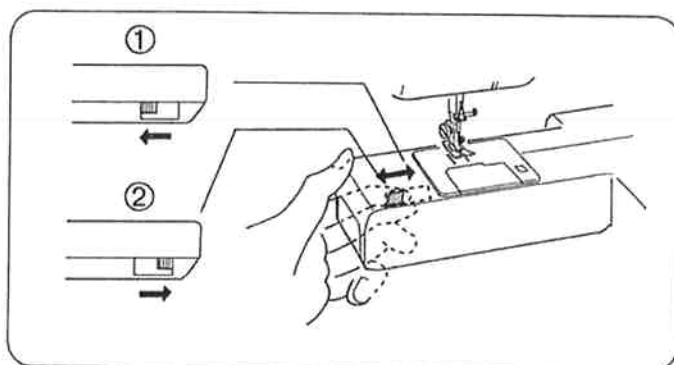
• Tension is too loose

The needle thread shows through on the underside of the fabric and it will feel bumpy.

Turn the dial to the right to tighten the needle thread tension.

Solution: Higher numbers (Tighten)



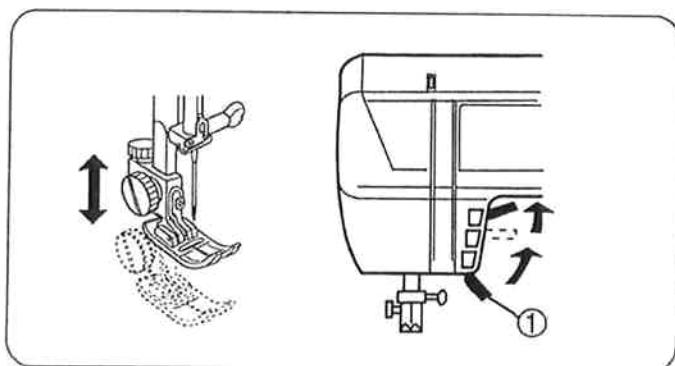


How to Drop the Feed Dog

The feed dog drops out of position for special sewing techniques: free motion embroidery, button sewing, etc.

The feed dog must always be up for normal sewing. Locate the feed dog lever on the back of the free arm. Slide the lever either to the right (down) or to the left (up).

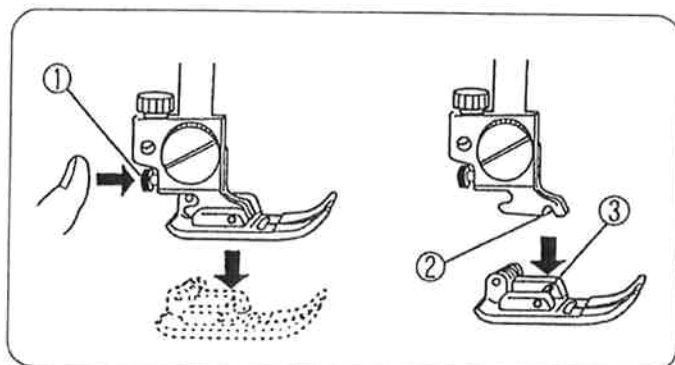
- ① Lowered position
- ② Raised position



Additional Presser Foot Clearance

You can raise the presser foot about 6.5 mm (1/4") higher than the normal up position for easy removal of the presser foot or to help you place heavy fabrics under the presser foot. Pull up the presser foot lever beyond the normal up position.

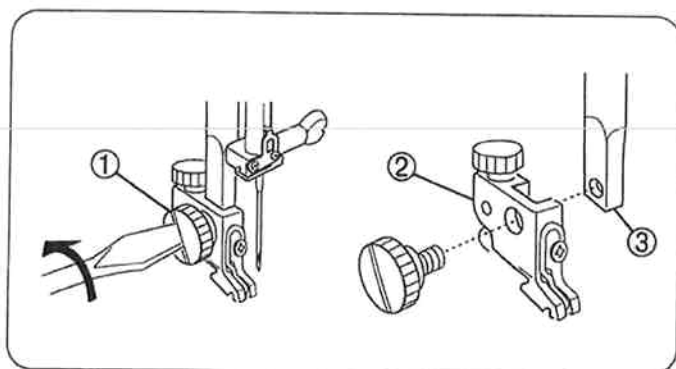
- ① Presser foot lever



Attaching and Removing Presser Feet

Press the red button on back of the shank. The presser foot will drop off. Place the selected presser foot so the pin on the foot lies just under the groove of the shank. Lower the presser bar to attach the foot.

- ① Red button
- ② Groove
- ③ Pin



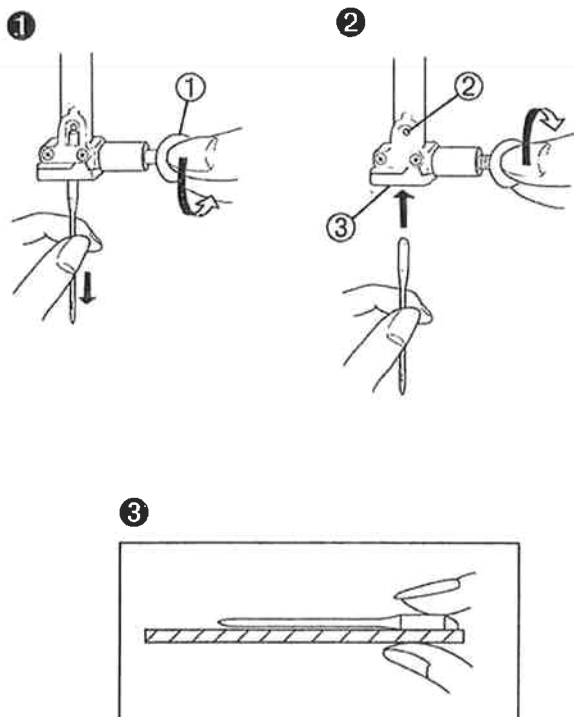
Attaching and Removing the Shank

The shank is removed by turning the thumbscrew counter-clockwise with the screwdriver.

- ① Thumbscrew

When attaching, match the hole in the shank with the hole in the presser bar. Put thumbscrew into hole. Tighten thumbscrew by turning it clockwise.

- ② Shank
- ③ Presser bar



Changing Needles

- ❶ Raise the needle by pressing the up/down needle key. Lower the presser foot.

Turn off the power switch.

Loosen the needle clamp screw by turning it counter-clockwise.

- ❶ Needle clamp screw

- ❷ Remove the needle from the clamp. Insert the new needle into needle clamp with flat side to the back.

When inserting the needle into the clamp, push it up as far as it will go and tighten the clamp screw firmly.

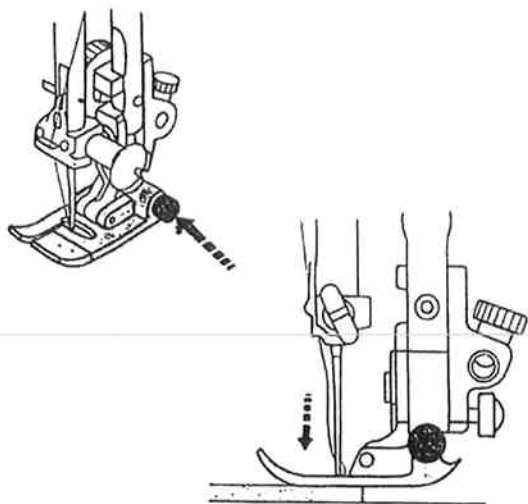
- ❷ Pin

- ❸ Needle clamp

- ❹ To determine if the needle is defective, place the flat side of the needle onto something flat (a needle plate, glass, etc.).

The gap between the needle and the flat surface should be consistent. Never use a bent or blunt needle. It may cause skipped stitches or thread breakage. Defective needles can ruin the fabric.

Always purchase good quality needles. Change needle often.

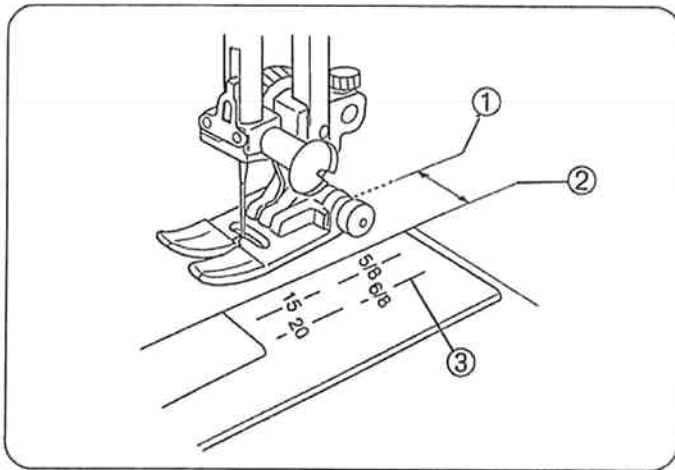


Sewing on Heavy Fabrics

The black button on presser foot A locks the foot in a horizontal position when pushed in before lowering the presser foot. This ensures even feeding at the beginning of seams and helps when sewing many layers of fabric such as welt seams used to hem jeans.

When the point of an increased thickness is reached, lower the needle and raise the presser foot. Press in the black button. Lower the foot and continue sewing.

This button releases automatically after a few stitches have been sewn.



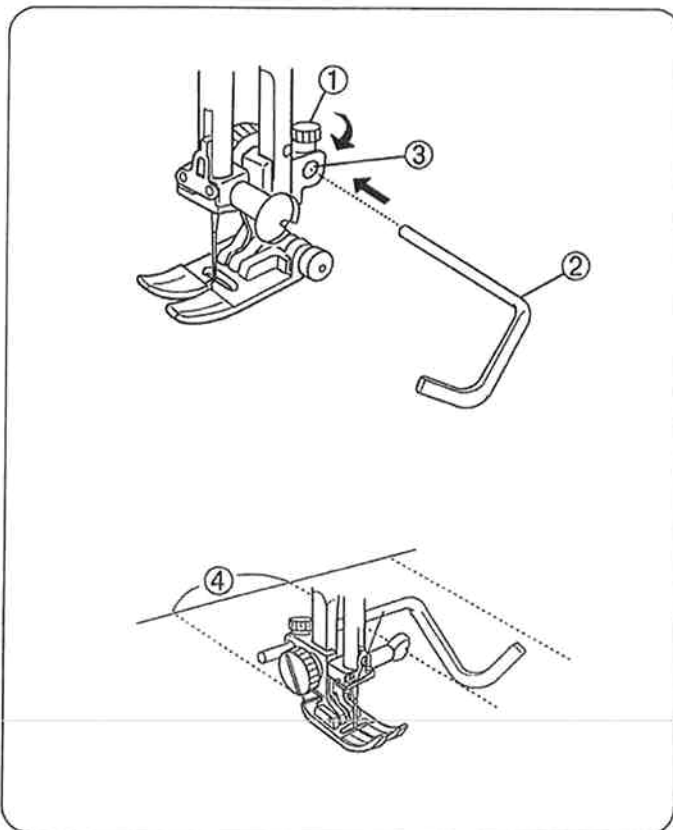
Seam Allowance Lines

The lines on the needle plate and bobbin cover plate help you measure seam width.

- The number indicates the distance between the center needle position P 3.5 and the seam allowance line.

	Millimeters		Inches		
Lines on needle plate	15	20	4/8"	5/8"	6/8"

- ① Center needle position
- ② Edge of fabric
- ③ Needle plate guide lines



Quilt Guide

The quilt guide will help keep the stitching lines straight. Loosen the quilt holding screw, slide the quilt guide in the opening until the desired width is set and tighten the screw. Sew; the quilt guide will lie over the previous row of stitching.

- ① Quilt holding screw
- ② Quilt guide
- ③ Hole
- ④ Distance

Connecting Machine to Power Supply

Before connecting the power cord, make sure the voltage and frequency shown on the machine are identical to your electrical power.

To connect the foot control, turn off the power switch. Insert the foot control plug and machine plug into the machine and the power supply plug into the wall in this order.

- | | |
|---------------------|---------------------|
| ① Foot control plug | ④ Power switch |
| ② Machine plug | ⑤ Power supply cord |
| ③ Power supply plug | ⑥ Foot control |

For Your Safety

1. While in operation, always keep your eye on the sewing area and do not touch any moving parts such as the thread take-up lever, flywheel or needle.
2. Always turn off the power switch and unplug from the power supply:
 - when leaving the machine unattended
 - when attaching or removing parts
 - when cleaning the machine.
3. Do not place anything on the foot control.

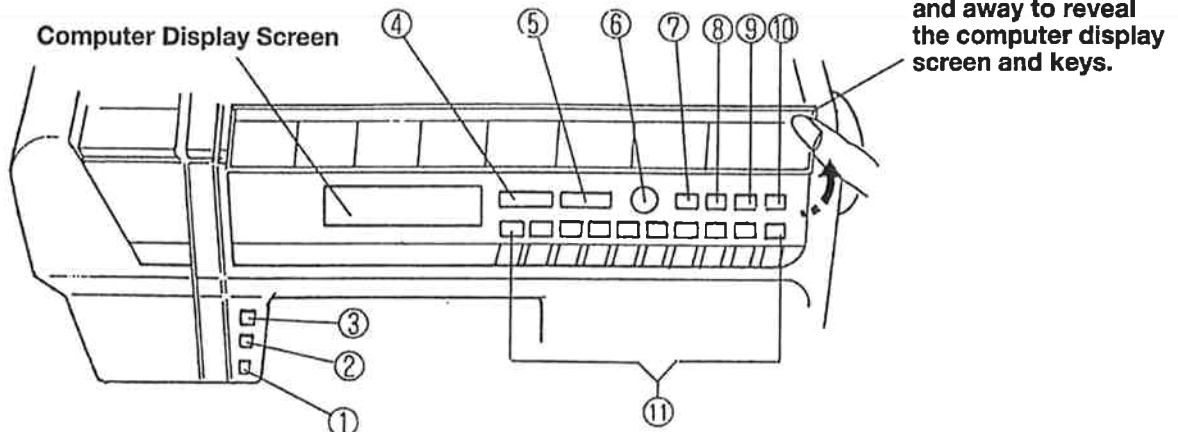
Operating Instructions:

The "O" symbol on the power switch indicates the "OFF" position.

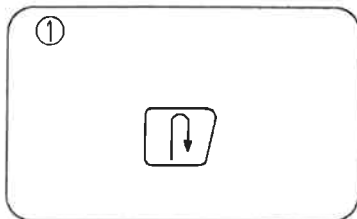
Your machine may come equipped with a polarized plug (one prong wider than the other). A polarized plug reduces the risk of electrical shock. This plug is intended to fit into a polarized outlet. If the plug does not fit fully into the outlet, reverse the plug. If it still does not fit, contact a qualified electrician to install the proper outlet. Do not modify the plug in any way.

Main Function of Keys

(Keys are located underneath front cover.)



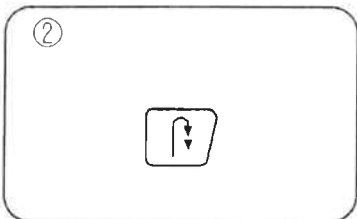
Lift front cover up and away to reveal the computer display screen and keys.



① Reverse Key

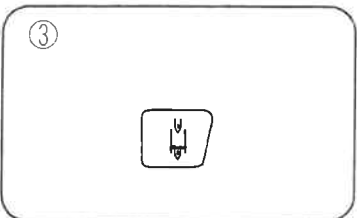
If you are sewing a straight stitch, zigzag stitch or multiple zigzag stitch (Stitches 1, 2 and 3), press and hold the reverse key. The machine will sew in reverse until you release the key.

If you are sewing utility or decorative stitches, when you press this key the machine will immediately stop and sew a locking stitch.



② Auto-Lock Key

Press this key while sewing a straight stitch, zigzag stitch or multiple zigzag stitch (Stitches 1, 2 and 3), the machine will sew a few stitches in place and stop automatically. Press this key while sewing utility or decorative stitches and the machine will complete the stitch, lockstitch and stop.

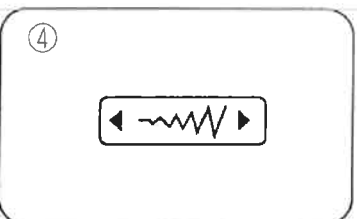


③ Up/Down Needle Key

When you press this key:

If the needle is up, the needle will go down to its lowest position. The needle will continue to stop in the down position.

If the needle is down, the needle will go to its highest position. The needle will continue to stop in the up position.

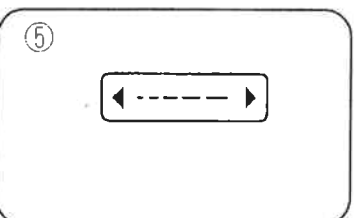


④ Stitch Width Key

Stitch width is shown on the computer display screen.

To decrease the stitch width, press the ◀ key.

To increase the stitch width, press the ▶ key.

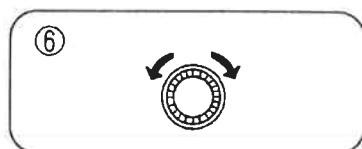


⑤ Stitch Length Key

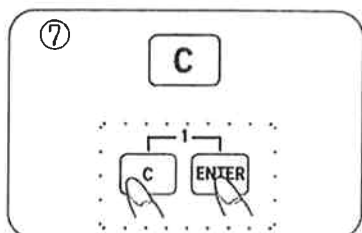
Stitch length is shown on the computer display screen.

To decrease the stitch length, press the ◀ key.

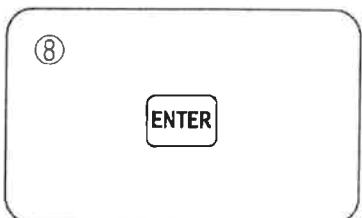
To increase the stitch length, press the ▶ key.



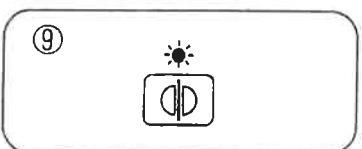
- ⑥ **Computer Display Screen Brightness Control**
Display screen lightens or darkens for visibility.



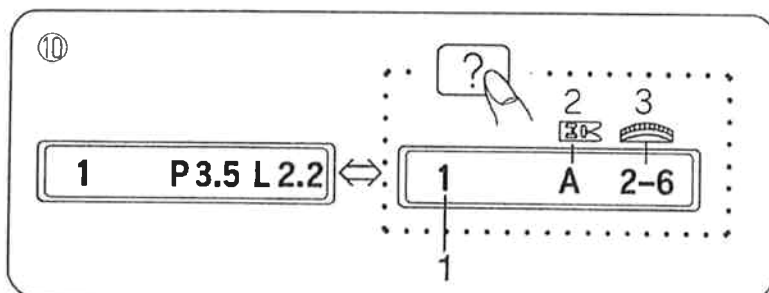
- ⑦ **Clear Key**
When this key is pressed, the memorized stitches will be cleared one by one. When the Clear key and Enter key are pressed simultaneously, the entire memorized program is cleared.



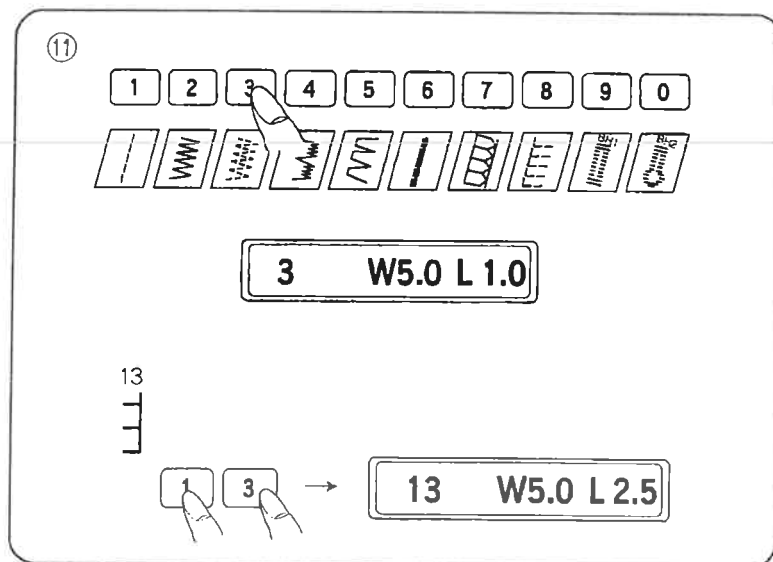
- ⑧ **Enter / Memory Key**
When this key is pressed after selecting a stitch, the stitch will be memorized. When the key is pressed after selecting another stitch, that stitch will be memorized after the previously memorized stitch. The memory will program up to 50 stitches including the locking stitch at the end.



- ⑨ **Mirror Image Key**
When this key is pressed after selecting a stitch, the stitch will be in mirror image.



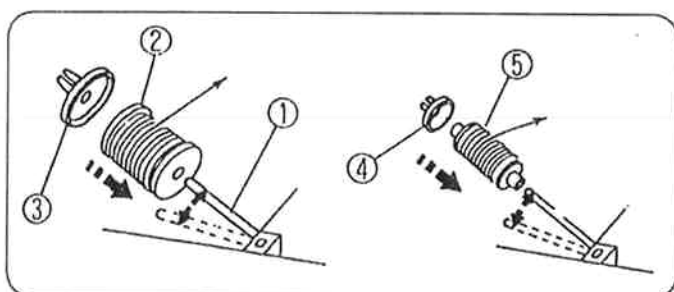
- ⑩ **Information Key**
While pressing this key, the computer display screen shows:
1. Stitch number
2. Suggested presser foot
3. Suggested thread tension



- ⑪ **Stitch Selection Keys**
You can select a stitch by pressing the key directly above the stitch illustration.

The computer display screen shows:
3: Stitch number
W: Stitch width
L: Stitch length

To select stitches 10-42, simply press the 2 digits for the desired stitch. To cancel the stitch you selected, press the clear key.

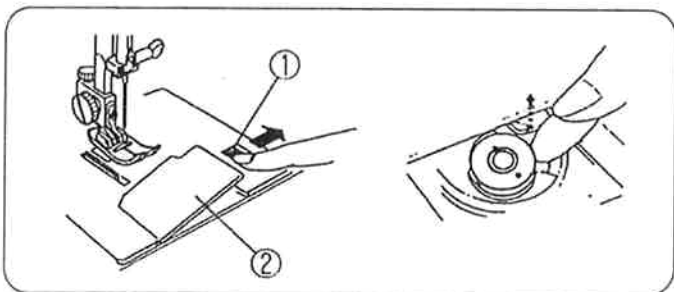


Winding the Bobbin

Placing the thread spool

Lift up the spool pin. Place the spool of thread on the spool pin with the thread coming off the spool as shown. Attach the large spool holder and press it firmly against the spool of thread. (The small spool holder is used with narrow or small spools of thread.)

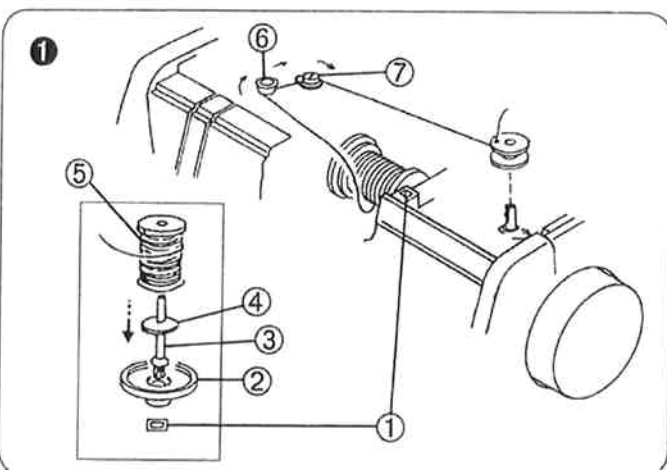
- ① Spool pin
- ② Ordinary spool
- ③ Large spool holder
- ④ Small spool holder
- ⑤ Small spool



Removing the Bobbin

Gently slide the bobbin cover plate release button to the right and remove the cover plate. Lift out the bobbin.

- ① Bobbin cover plate release button
- ② Bobbin cover plate



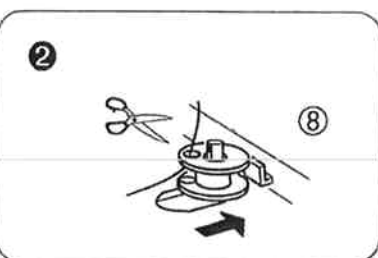
Winding the Bobbin

- ① Guide the thread around the upper thread guide and the bobbin winder thread guide. Pass the thread through the hole in the bobbin from the inside to the outside.

The additional spool pin may be used to wind an extra bobbin without unthreading the machine.

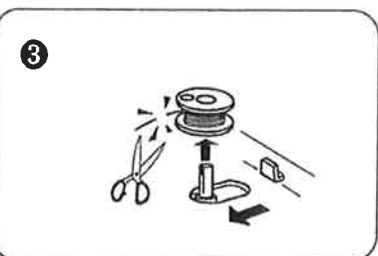
Procedure: insert the spool stand and the additional spool pin in the hole. Place the felt and spool on the pin with the thread coming off the spool as shown.

- ① Hole for spool pin
- ② Spool stand
- ③ Spool pin
- ④ Felt
- ⑤ Spool
- ⑥ Upper thread guide
- ⑦ Bobbin winder thread guide

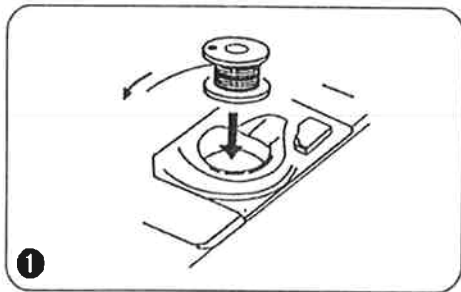


- ② Place the bobbin on the bobbin winder spindle and push it to the right. The computer display screen will read "Bobbin Winding". Holding the free end of the thread, press the foot control. Stop the machine when it has made a few turns and cut the thread close to the hole in the bobbin. Press the foot control again. When the bobbin is fully wound, it will stop automatically.

- ⑧ Bobbin winder stopper

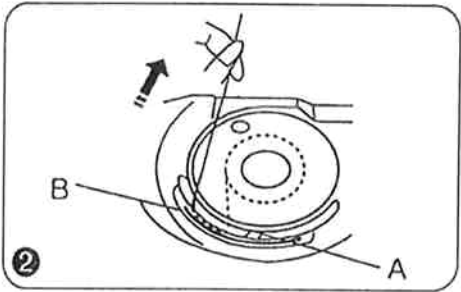


- ③ Return the bobbin winder to its original position by moving the spindle to the left and cut the thread as shown.



Inserting the Bobbin

- ❶ Place the bobbin in the bobbin case with the thread running counter-clockwise

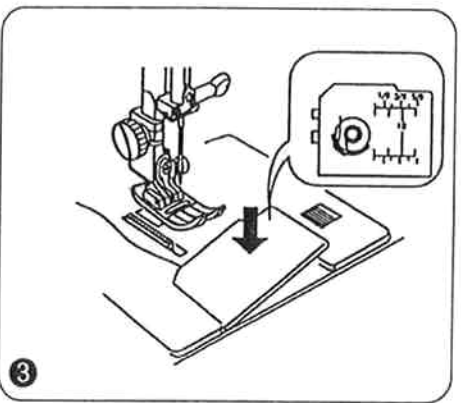


- ❷ Guide the thread into notch A on the front side of the bobbin case.

Hold the bobbin with your right hand and pull the thread to the left, through the tension spring blades.

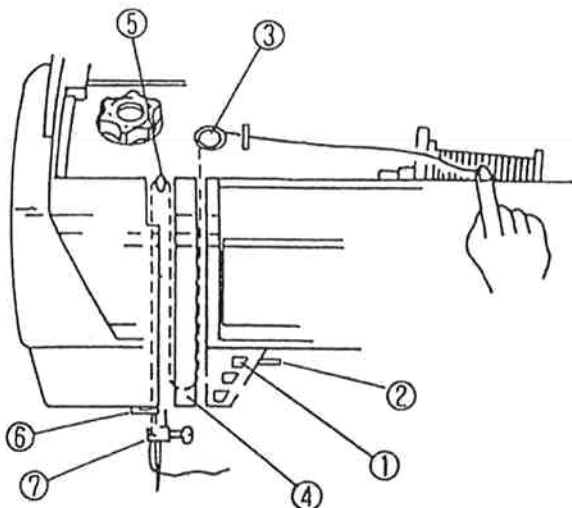
Continue pulling the thread lightly until the thread slips into notch B.

Pull out about 15 cm (6") of thread.



- ❸ Replace the bobbin cover plate.

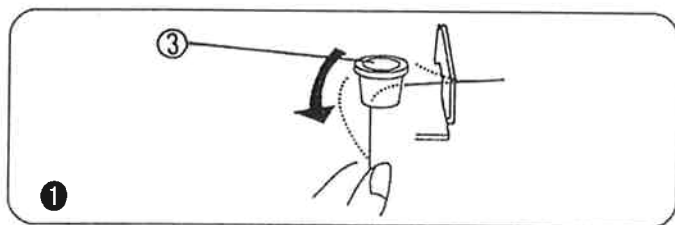
Check the threading by referring to the chart shown on the bobbin cover plate.



Threading the machine

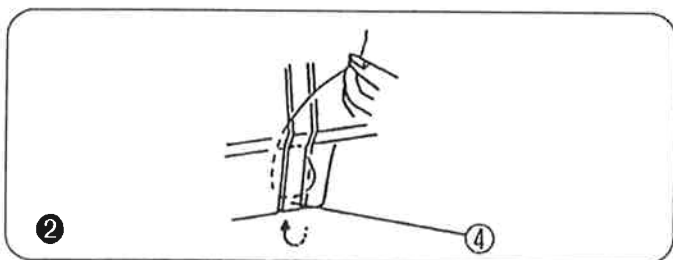
Raise the presser foot. Press the Up/Down needle key until the needle is in an up position.

- ① Up/Down needle key
- ② Presser foot lever



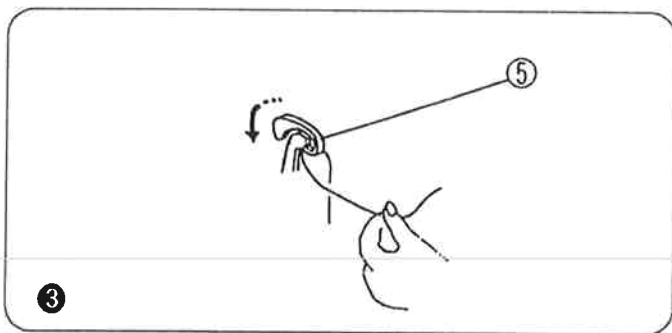
- ① Pull the thread around the upper thread guide.

- ③ Upper thread guide



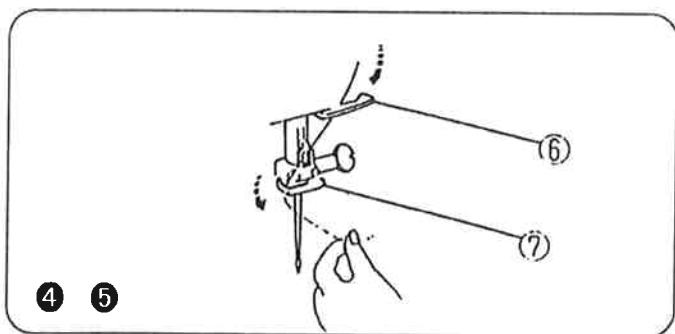
- ② Guide the thread down and around the checkspring holder.

- ④ Checkspring holder



- ③ Firmly pull the thread from right to left, over the take-up lever and down into the take-up lever eye.

- ⑤ Thread take-up lever eye



- ④ Proceed down through the lower thread guide.

- ⑥ Lower thread guide

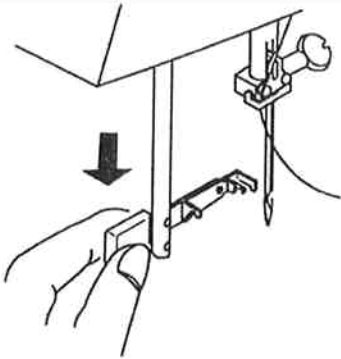
- ⑤ Slide the thread to the left behind the needle bar thread guide.

Thread the needle from front to back or use the automatic needle threader.

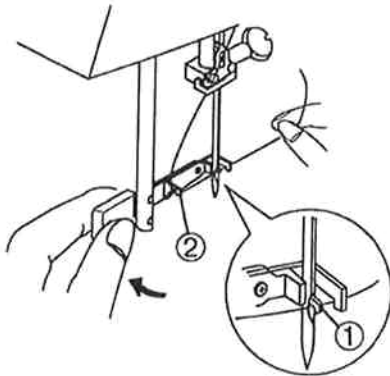
- ⑦ Needle bar thread guide

Automatic Needle Threader

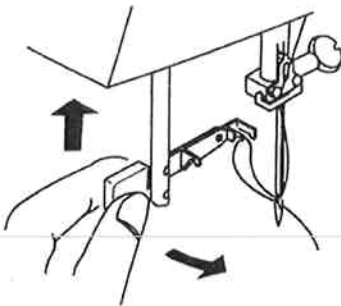
①



②



③



① Raise the needle to its highest position.
Lower the needle threader lever as far as it will go.

② Turn the lever in the direction of the arrow in the illustration, then insert Hook ① into the needle eye. Bring the thread around Guide ② and under Hook ①.

③ Turn the lever in the direction of the arrow in the illustration, drawing the thread loop through the needle.

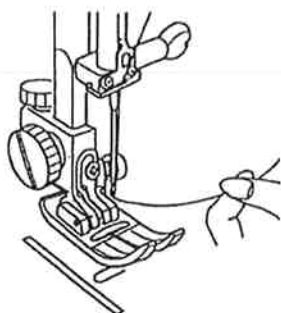
Release the lever and let the needle threader return to its original position.

Manually bring the thread through the needle eye by pulling the thread loop to the back.

- The needle threader can be used with #11 to #16 size needles. Thread weight may vary from 30 to 100.

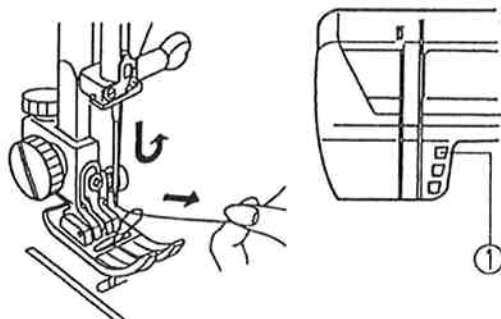
Drawing Up the Bobbin Thread

①



- ① Raise the presser foot. Hold the needle thread lightly with your left hand.

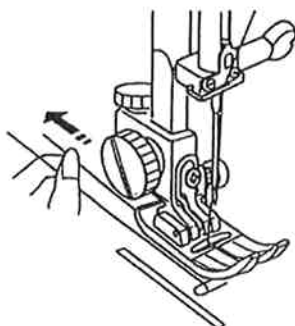
②



- ② Press the up/down needle key twice to pick up the bobbin thread. Draw up the needle thread together with a loop of bobbin thread.

① Up/down needle key

③



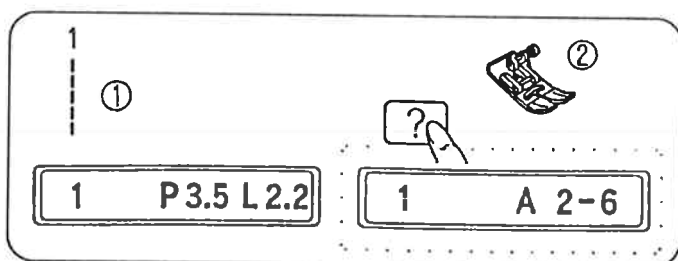
- ③ Slide 10 cm (4") of both threads to the back under the presser foot.

Choosing Your Needle and Thread

	FABRICS	THREADS	NEEDLE SIZE
Light Weight	Crepe de chine Voile, Lawn, Organdi, Georgette, Tricot	Fine Silk Fine Cotton Fine Synthetic Fine Cotton Covered Polyester	9 or 11
Medium Weight	Linen, Cotton, Pique, Serge, Double Knit, Percale	50 Silk 30 to 80 Cotton 30 to 60 Synthetic Cotton Covered Polyester	11 or 14
Heavy Weight	Denim, Tweed, Gabardine, Coating, Drapery, and Upholstery fabric	50 Silk 30 to 50 Cotton 30 to 50 Synthetic Cotton Covered Polyester	14 or 16

NOTE:

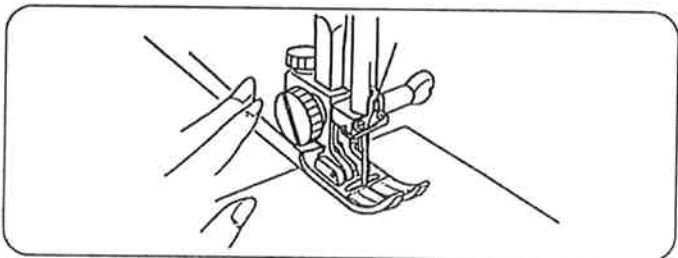
- In general, fine threads and needles are used for sewing lightweight fabrics and heavier threads and needles are used for sewing heavyweight fabrics. Always test thread and needle size on a scrap piece of fabric.
- Use the same thread for needle and bobbin.
- When sewing stretch, very fine or synthetic fabrics, use a stretch needle. The stretch needle prevents skipped stitches.



Straight Stitch

When the machine is turned on, it is automatically set to sew a straight stitch in the center needle position.

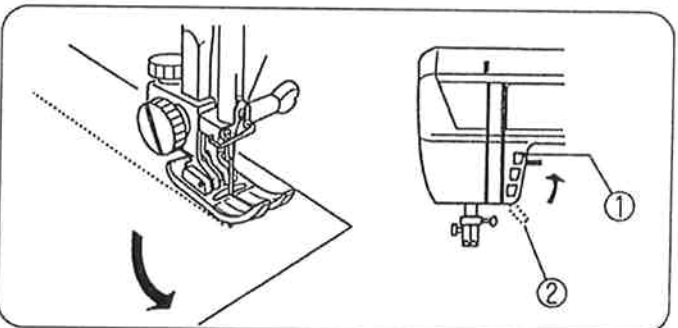
- ① 1: Straight stitch
- ② A: Metal foot



Starting to Sew

Raise the presser foot and position the fabric next to a seam allowance line on the needle plate (see page 8). Lower the needle to the point where sewing is to begin.

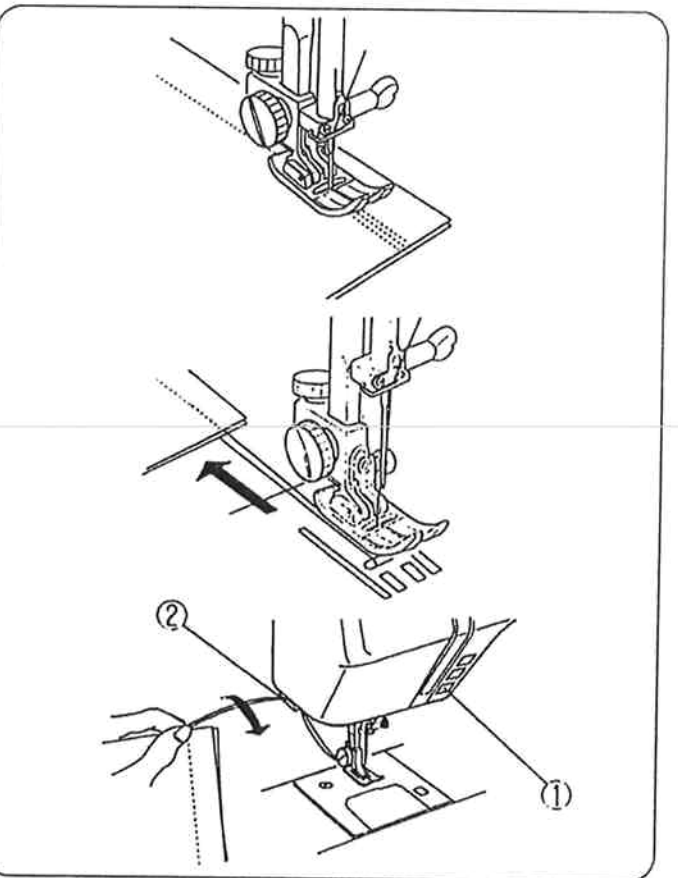
Lower the presser foot and pull the threads toward the back. Press the foot control. Gently guide the fabric along the seam allowance line letting the fabric feed naturally.



Changing Sewing Direction

Stop the machine and bring the needle down into the fabric by pressing the up/down needle key. Raise the presser foot. Pivot the fabric around the needle to change sewing direction. Lower the presser foot.

- ① Up/down needle key
- ② Presser foot lever



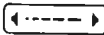
Finishing Off a Seam

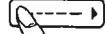
To fasten the threads at the end of a seam, press and hold the reverse key while sewing.

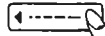
Raise the presser foot. Remove the fabric, pull the threads to the back and cut threads using the thread cutter. (The threads are cut the proper length to start the next seam.)

- ① Reverse key
- ② Thread cutter

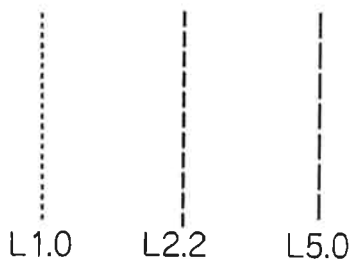
Adjusting Stitch Length Manually

When you press  key, the pre-programmed setting (2.2) will appear on the screen. It can be set between 0 and 5.

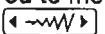
Press  key and the number on the screen will decrease and the stitch length will be shorter.

Press  key and the number on the screen will increase and the stitch length will be longer.

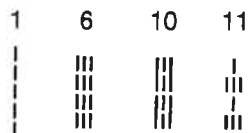
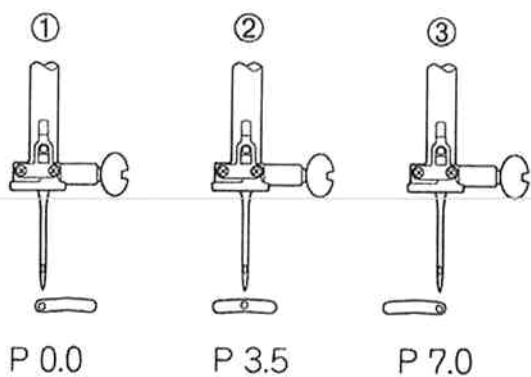
- The reverse stitch length will not sew any longer than 3 mm (1/8").

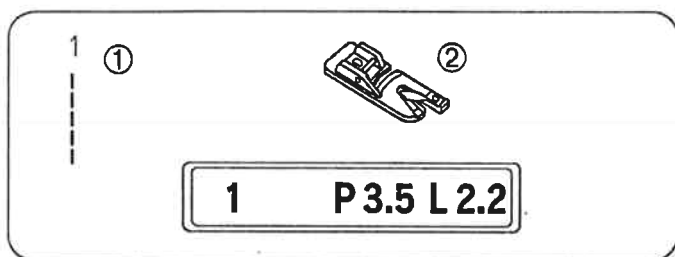


Variable Needle Positions

The stitches listed below allow you to move the needle to any position by pressing the  key. There is a total of 15 needle positions.

- ① Left position
- ② Center position
- ③ Right position

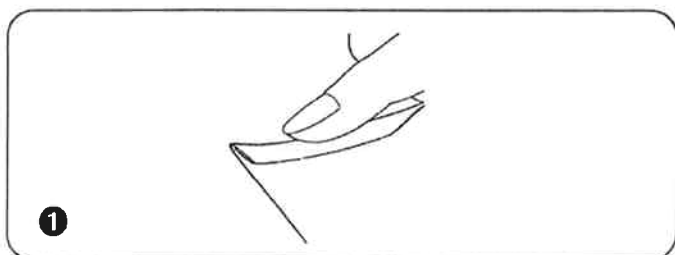




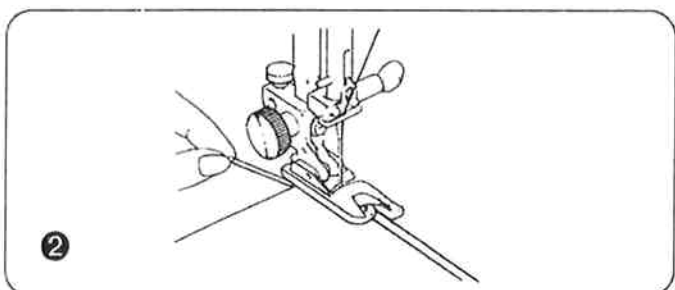
Rolled Hem

An easy, professional way to sew hems using the straight stitch. Recommended for fine, sheer fabrics used in bridal wear.

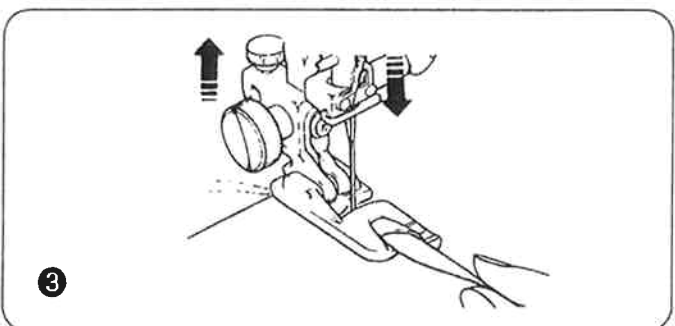
- ① 1: Straight stitch
- ② D: Hemmer foot



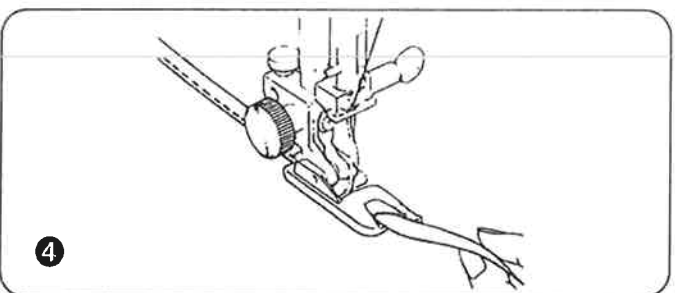
- ① Make a double 3 mm (1/8") fold approximately 8 cm (3") in length.



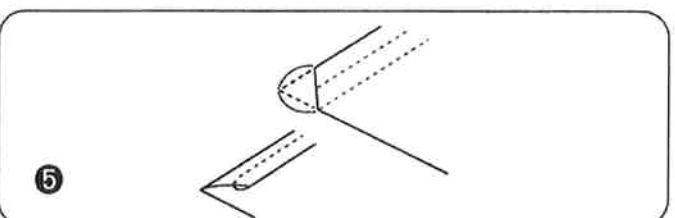
- ② Lower the needle into the fabric at the point where sewing is to begin; lower the hemmer foot D. Sew 3 or 4 stitches while holding the needle and bobbin threads.



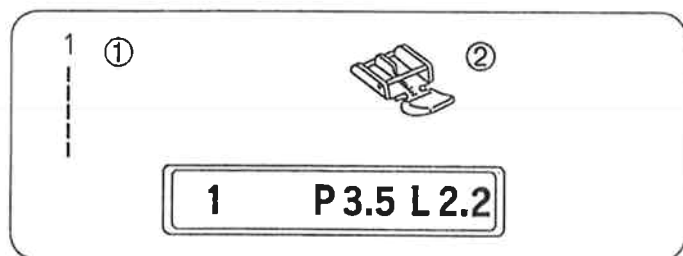
- ③ Lower the needle into the fabric and raise the hemmer foot. Insert the folded portion of the fabric into the curl of the hemmer foot.



- ④ Lower the hemmer foot, then sew by lifting up the edge of the fabric to keep it feeding smoothly.



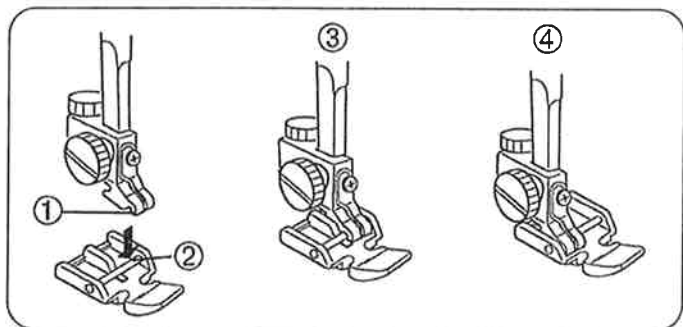
- ⑤ Trim about 6.5 mm (1/4") from corners to reduce bulk.



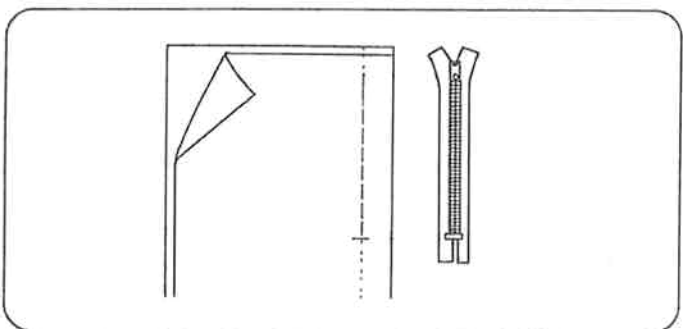
Zipper Insertion

- ① 1: Straight stitch
- ② E: Zipper foot

- To sew the left side of the zipper, attach the zipper foot on the right-hand side.
- To sew the right side of the zipper, attach the zipper foot on the left-hand side.



- ① Groove
- ② Pin
- ③ Sew left side
- ④ Sew right side

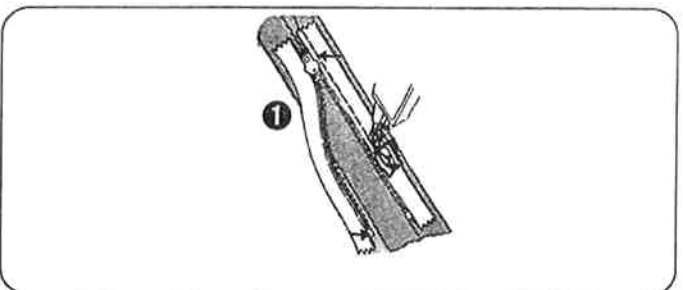


Fabric Preparation

Add 1 cm (3/8") to the zipper size. Use this measurement and mark the opening for the zipper.

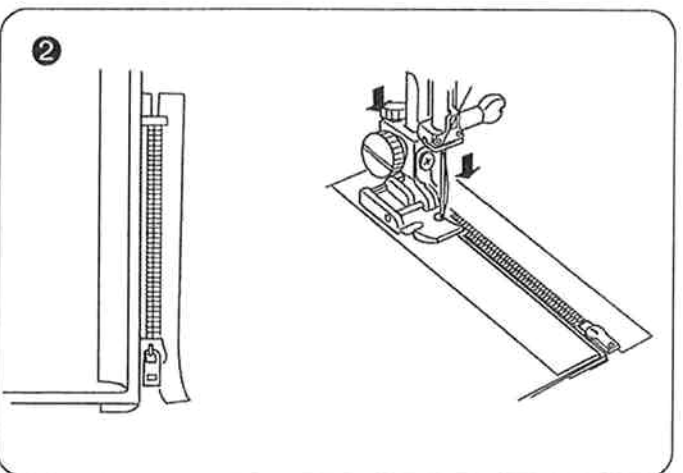
Place right sides of fabric together and sew the seam located below zipper placement. (Make sure to reverse sew the stitches directly below the zipper placement.)

Increase stitch length to 4.5 and baste the zipper opening closed. Press the seam and basting seam open.



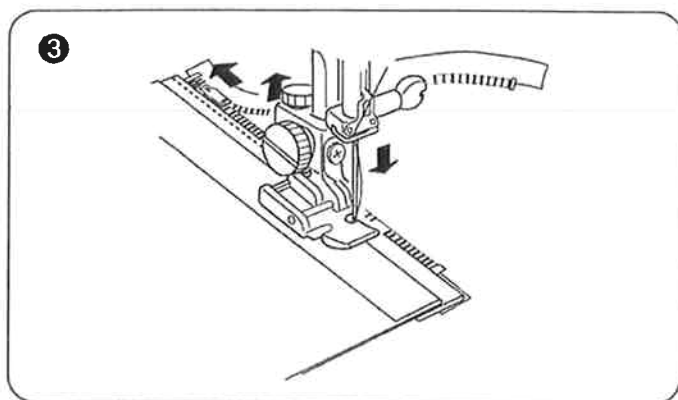
Lapped Application

- ① Open zipper and place it face down on the seam allowance. Teeth are on the seam line and zipper top is 1 cm (3/8") from fabric top edge. Attach foot with left side pin. Baste zipper in place, sewing from bottom to top.

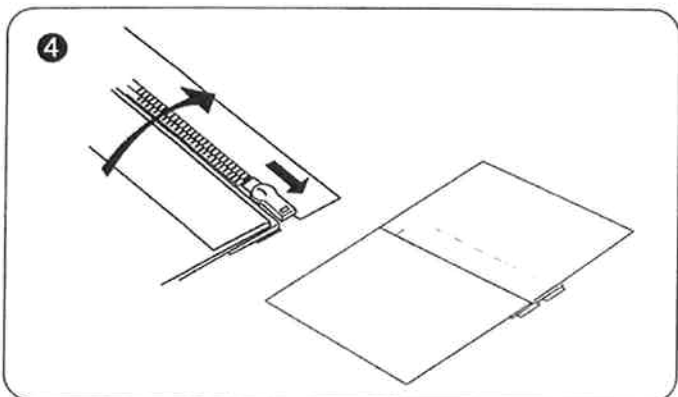


- ② Close zipper. Turn zipper face up (right seam allowance forms a small fold at basting line) and smooth zipper teeth away from seam. Attach foot with right side pin. Re-set straight stitch length to 2.2. Starting at the bottom, sew through the folded seam allowance and zipper tape.

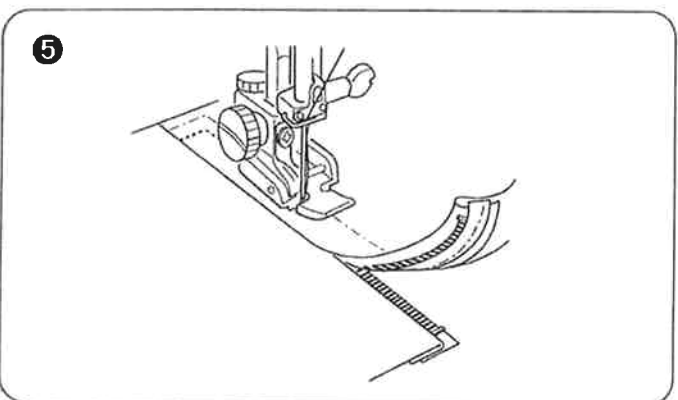
Zipper Sewing, cont'd.



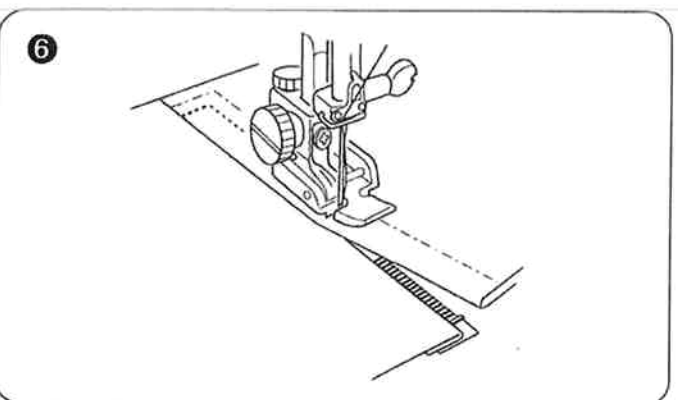
- ③ Stop just before the zipper foot reaches the slider on the zipper tape. Lower the needle slightly into the fabric. Raise the zipper foot and open the zipper. Lower the foot and stitch the remainder of the seam.



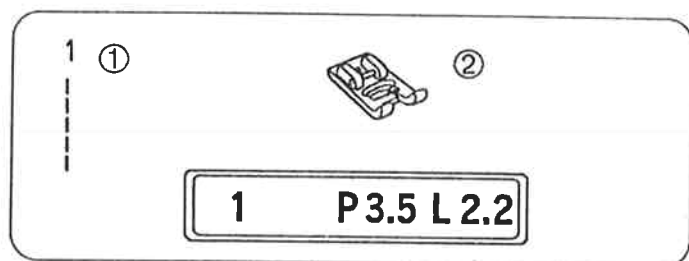
- ④ Close the zipper and spread the fabric flat with the right side facing up. Baste through the opened seam allowance and zipper tape.



- ⑤ Move the zipper foot to the left side pin. Guide the edge of foot along the zipper teeth and stitch through the garment and zipper tape. Stop about 5 cm (2") from the top of the zipper.



- ⑥ Slightly lower the needle into the fabric. Raise the foot, remove the basting stitches and open the zipper. Lower the foot and stitch the remainder of the seam, making sure the fold is even.



Twin Needle Hem

A twin needle hem is quick and easy. It is especially useful for very stretchy fabrics.

Turn off the power switch and insert the twin needle.

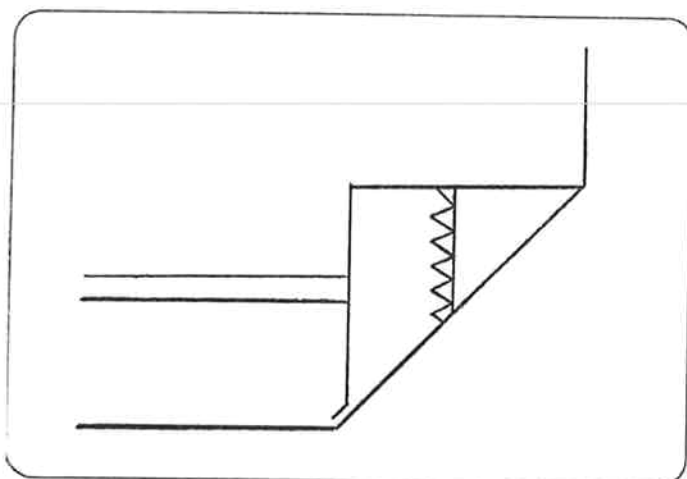
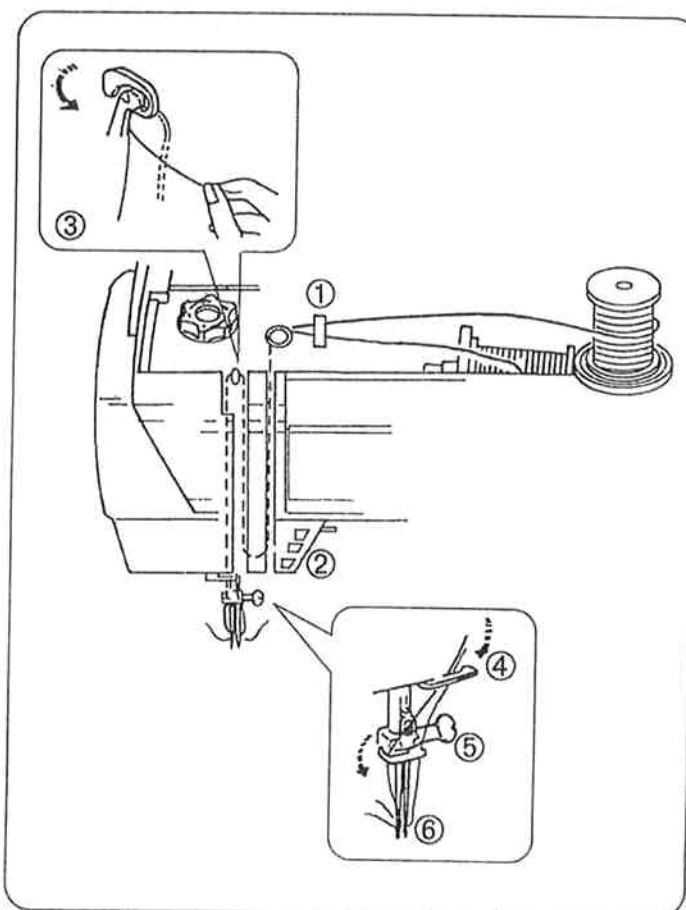
Insert the additional spool pin and put the spool pin felt and second spool on it. (See page 12.)

Use the center needle position.





- ① 1 Straight stitch
- ② F: Satin stitch foot

Threading the machine

- ① – ③ Thread 1 through 3 in the same manner as single thread. (See page 14.)
- ④ Draw the threads down and slide them through the right side of the lower thread guide.
- ⑤ Slide one of the threads through the needle bar thread guide on the left and the other one on the right.
- ⑥ Thread the needles from front to back.
 - The needle threader cannot be used with a twin needle.



Fold the hem up desired amount and topstitch with the twin needle. Trim away excess fabric carefully using sharp scissors. This is an excellent hemming method for knit fabrics because the bobbin thread zigzags, allowing the hem to stretch with the fabric.

① 1 — — — — —	② 
6 	
10 	
11 — — — — —	③ 

Other Forms of the Straight Stitch

• Straight Stitch

When the machine is turned on, it is automatically set to sew a straight stitch. This stitch can be used for regular seams, zippers, topstitching, etc.

① 1: Straight stitch ② A: Metal foot

• Triple Straight Stretch Stitch

This strong, durable stitch is recommended where both elasticity and strength are needed to ensure comfort and durability. Use it to reinforce areas such as crotch and arm-hole seams. Also use for extra strength when constructing items such as backpacks.

• Saddle Stitch

Use to topstitch suits, blazers, jumpers, and denim outfits.

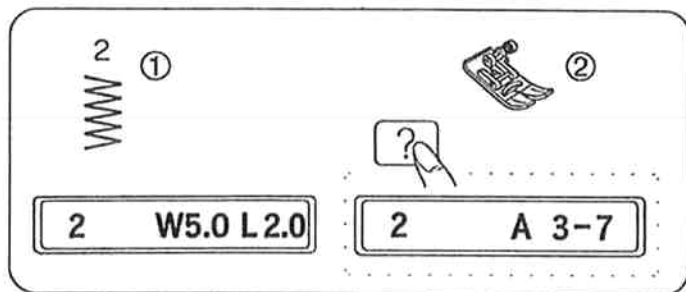
• Sculpture Stitch (Quilt Stitch)

The sculpture stitch adds a three dimensional effect when outlining designs for elegant motifs on clothing, table linens and crafts.

③ F: Satin stitch foot

• Quilt Stitch

You can easily duplicate hand quilted stitches by using monofilament thread in the needle, 60 weight cotton thread on the bobbin, and changing needle tension to 8. (See page 5.)

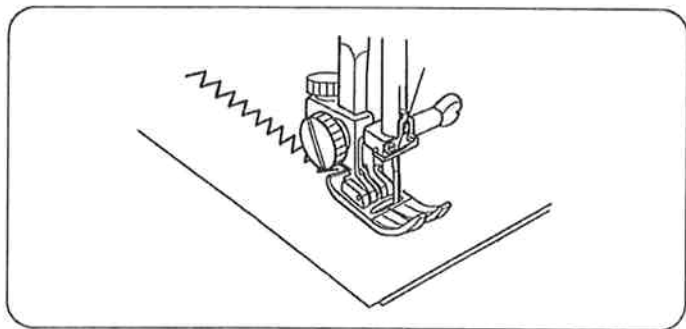


Zigzag Stitch



- ① 2: Zigzag stitch
- ② A: Metal foot

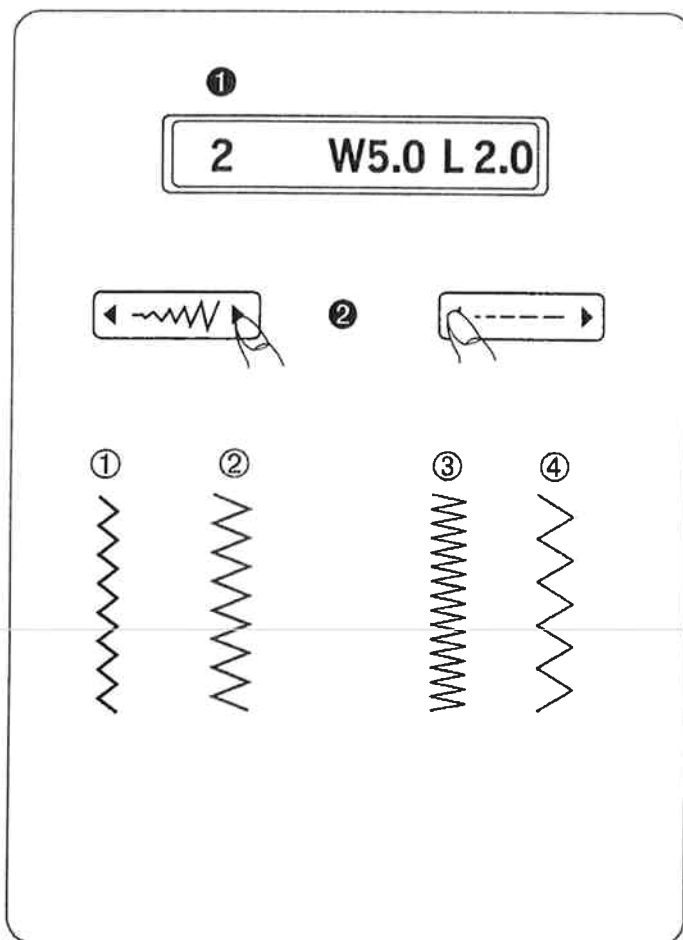
The zigzag stitch is a very versatile stitch. Simply change its width and length. Use the zigzag to finish raw edges, roll hems, satin stitch appliques and create beautiful monograms.

- Stabilize stretch fabrics with interfacing before doing applique or free motion embroidery.

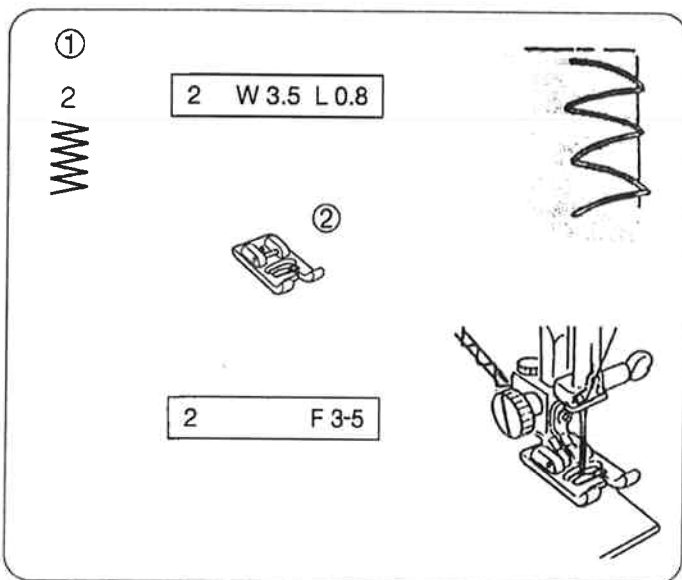


Adjusting Stitch Width and Length

- ① Pre-programmed stitch settings.
- ② Press the  or  key to change the stitch width and length.



- ① Narrower width (lower number)
- ② Wider width (higher number)
- ③ Shorter stitch (lower number)
- ④ Longer stitch (higher number)

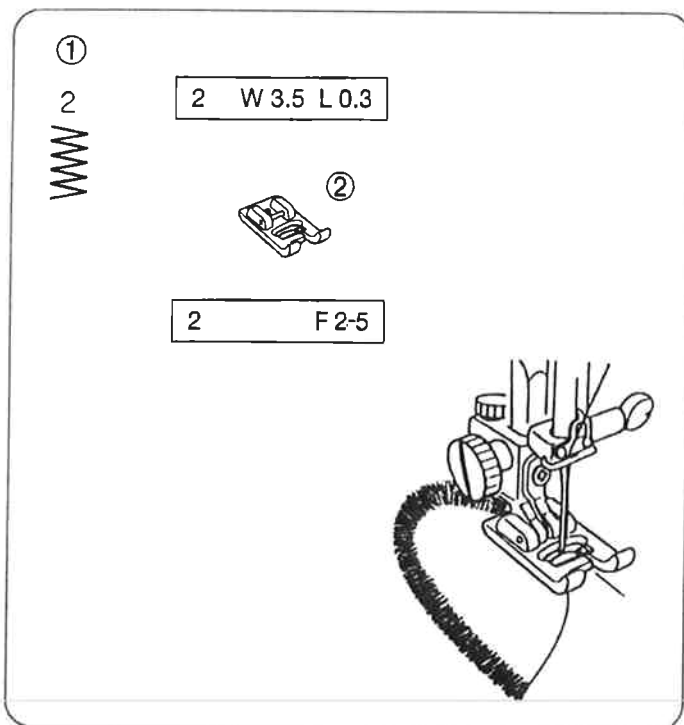


Whip and Roll Hem

This technique produces a beautiful edge on ruffles and hems. Whip and roll is commonly used in heirloom sewing.

The fabric edge must be clean. Lay the fabric edge in the center of the foot. The zigzag will catch the edge on the left and clear the raw edge on the right, rolling the fabric.

- ① 2: Zigzag stitch
- ② F: Satin stitch foot



Satin Stitch Applique

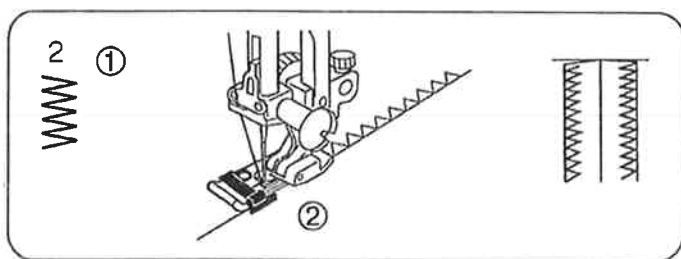
The satin stitch is commonly used for applique, monogramming, stems of flowers and petals. Threads of 100 % cotton, rayon or silk provide the best results.

- Apply stabilizer to the fabric for proper stitch formation.

Applique Preparation

- Press fusible webbing to the wrong side of a lightweight fabric.
- Cut out design shape. Fuse design to main fabric.
- Sew design to fabric with the needle swinging off the applique.

- ① 2: Zigzag stitch
- ② F: Satin stitch foot

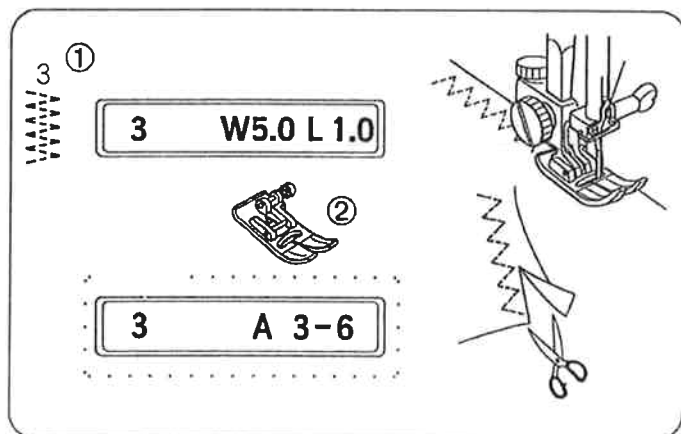


Overcast Stitches

• Zigzag Stitch

This stitch can be used on most woven fabrics. It is the fastest way to finish an edge. The brush on the foot ensures the thread lies flat with no puckering.

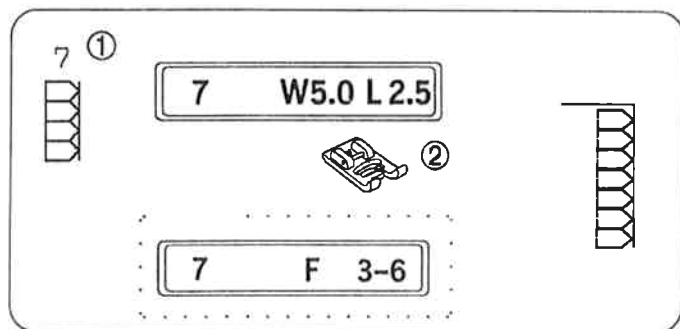
- ① 2: Zigzag stitch
- ② C: Overlock foot



• Multiple Zigzag

This stitch is used to finish seam allowances on synthetics and other fabrics that tend to pucker. This stitch is excellent for darning and mending tears in fabric.

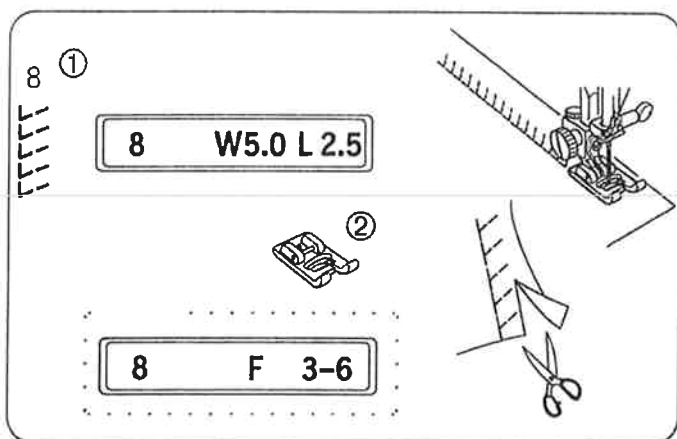
- ① 3: Multiple zigzag stitch
- ② A: Metal foot



• Super Overlock Stitch

This industrial inspired overlock stitch is excellent for assembling and finishing all types of fabrics. Apply ribbing to knits and the garment retains its shape.

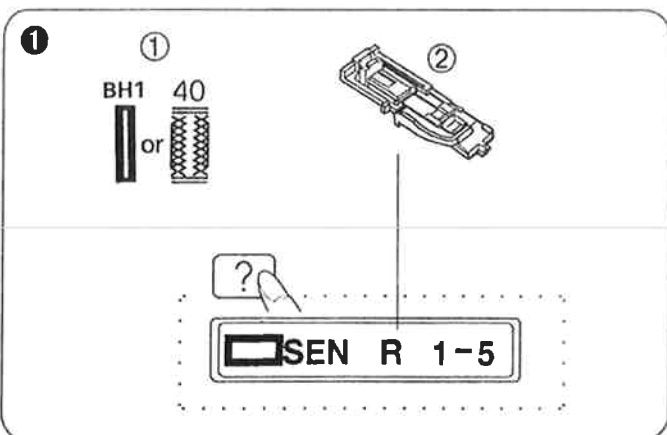
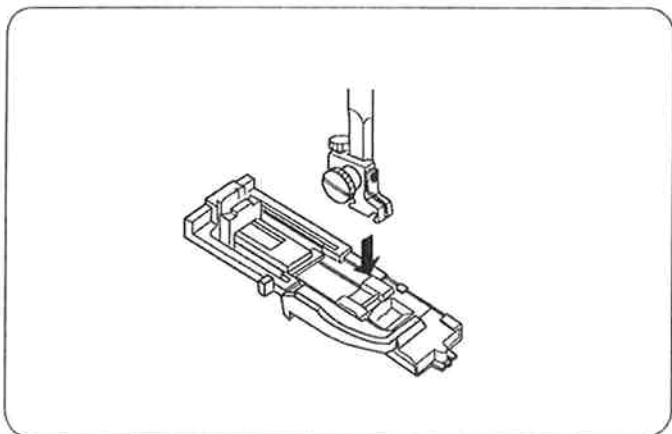
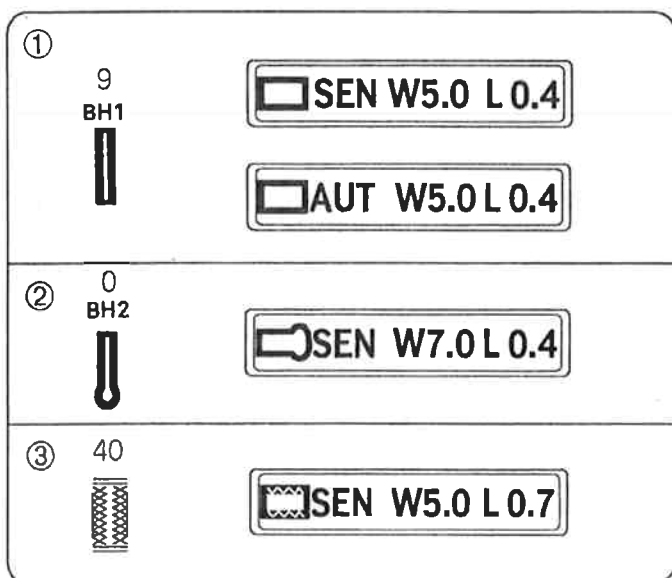
- ① 7: Super overlock stitch
- ② F: Satin stitch foot



• Super Stretch Stitch

This stitch is recommended for sewing fabrics such as swimwear and stretch velour as it provides the greatest amount of stretchability and strength. Seams lie flat and do not lose their shape. Foot pressure dial may need to change to "2" for fabric to maintain its shape.

- ① 8: Super stretch stitch
- ② F: Satin stitch foot



Buttonholes

Buttonhole Variations

All buttonholes should use interfacing suitable for the fabric weight. This is especially important when sewing on stretch fabrics.

- ① **Classic Buttonhole**
For buttonholes on shirts and blouses.
- ② **Keyhole Buttonhole**
For buttonholes on jackets.
- ③ **Stretch Buttonhole**
For stretch fabrics.

Test sew the buttonhole on a sample swatch of the same fabric. Include the interfacing and any seam allowances that will be in the actual garment. This is very important to ensure the buttonhole size and fabric are compatible.

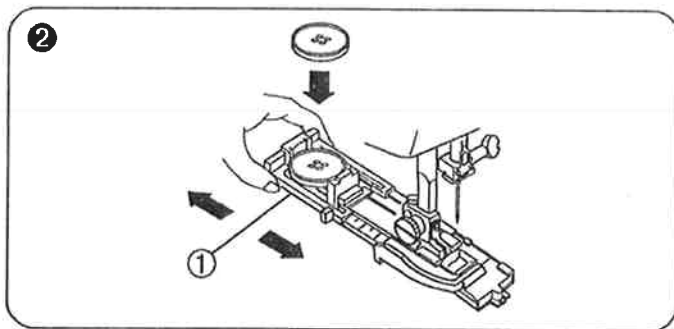
• Classic Sensor Buttonhole or Stretch Sensor Buttonhole

Attach the automatic buttonhole foot R. Make sure the button opening is at the back of the foot when it is attached.

- ① The size of the buttonhole is automatically set by placing the button in the automatic buttonhole foot. The button holder on the foot adjusts for a button up to 2.5 cm (1") in diameter.

Alter the buttonhole width to match the fabric and thread. (See page 30.)

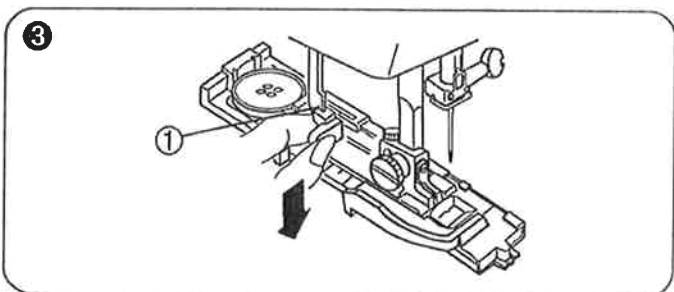
- ① BH1 or 40
- ② R: Automatic buttonhole foot



• **Classic Sensor Buttonhole or Stretch Sensor Buttonhole (cont'd)**

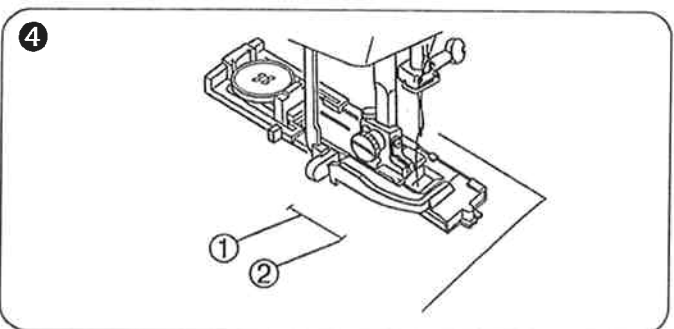
- ② Extend the button holder to the back and place the button in it. Push the holder together tightly around the button.

① Button holder



- ③ Pull the buttonhole lever down as far as it will go.

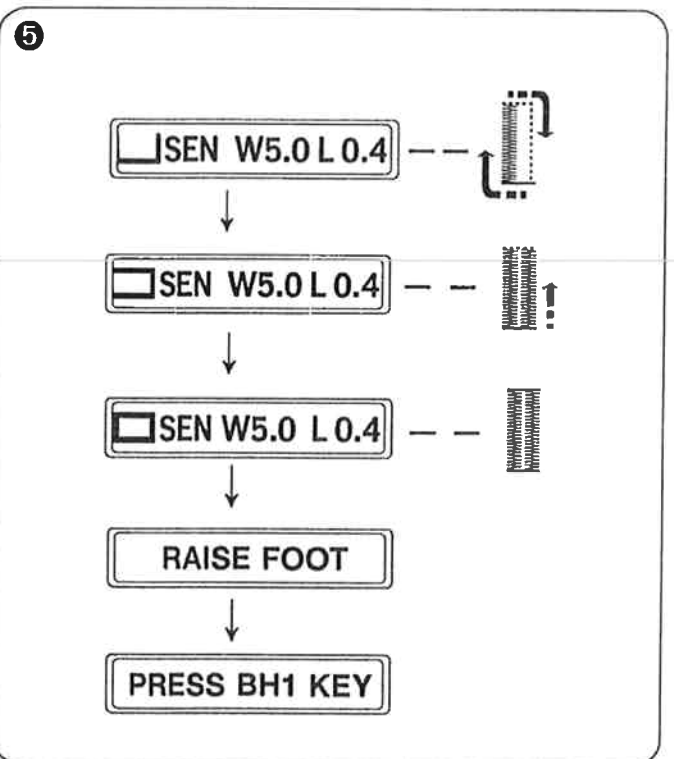
① Buttonhole lever



- ④ Place **both threads** to the left **under** the foot. Insert the garment under the foot and lower the needle at the starting point. Then lower the automatic buttonhole foot.

① Mark buttonhole placement

② Starting point



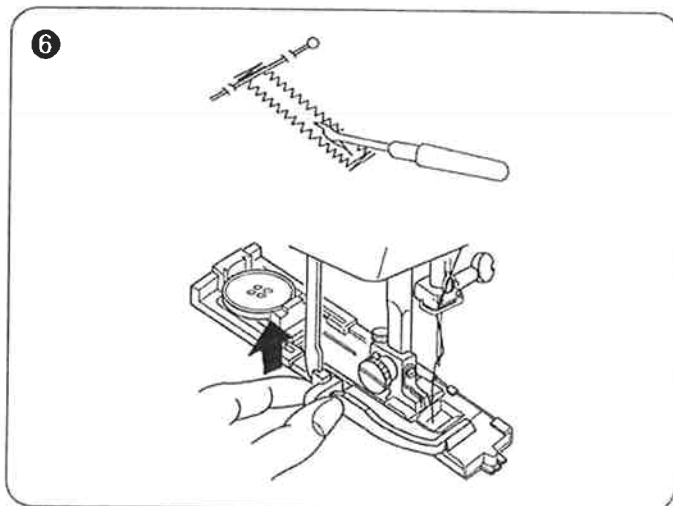
- ⑤ Press the foot control until the machine completes the buttonhole and stops by itself

The buttonhole will automatically sew: the front bartack and left side first, then the right side and back bartack and stop.

After sewing the classic buttonhole, the machine message will read "Raise Foot".

To sew another classic buttonhole or to start from the beginning of the buttonhole, press #9 (BH1) key, then press the foot control.

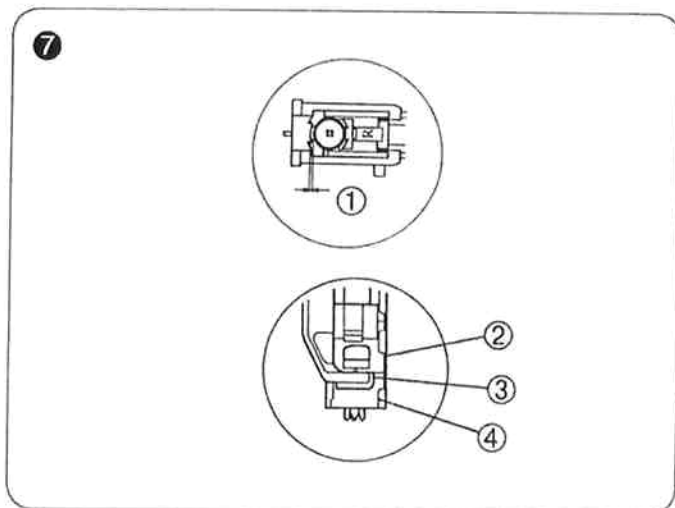
- After sewing the stretch buttonhole and the machine message reads "Completed", simply lift presser foot, move fabric and begin sewing next buttonhole.



• **Classic Sensor Buttonhole or Stretch Sensor Buttonhole (cont'd)**

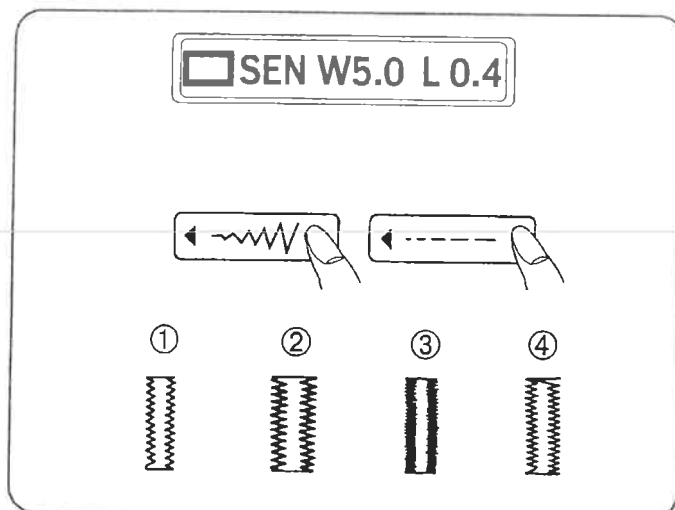
- ⑥ Remove the fabric and place a pin just inside the bartack at each end to prevent accidentally cutting bartacks. Cut buttonhole open with the seam ripper.

When buttonhole sewing is finished, push the buttonhole lever upward as far as it will go.



- ⑦ If the button is extremely thick and difficult to fit through the test buttonhole, you can lengthen the buttonhole by pulling the button holder on the foot back a little extra. The length of the hole will increase by that same amount.

- ① Button holder
- ② Slider
- ③ There should be no gap
- ④ Spring holder

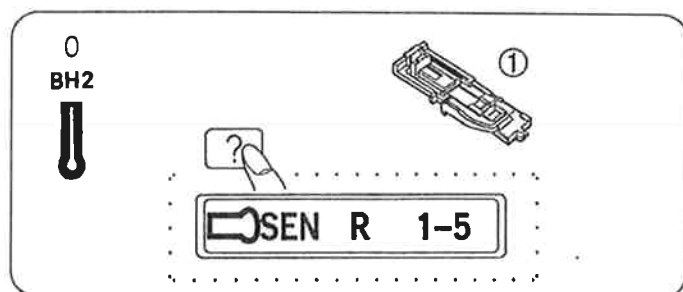


• **How to Alter Buttonhole Stitch Width and Length**

The pre-programmed stitch settings are shown on the screen.

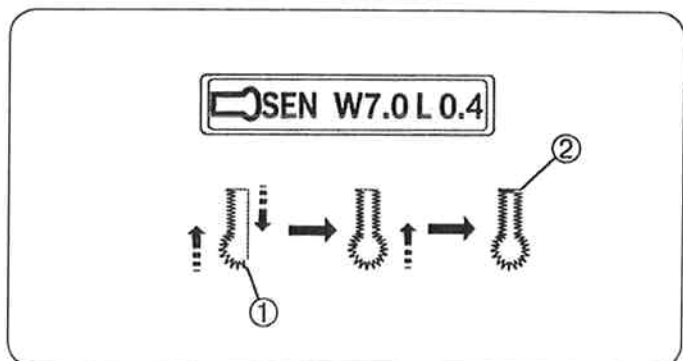
Press the or key to alter the buttonhole for different weights of fabric and thread.

- ① Narrow width
- ② Wider width
- ③ Shorter stitch
- ④ Longer stitch



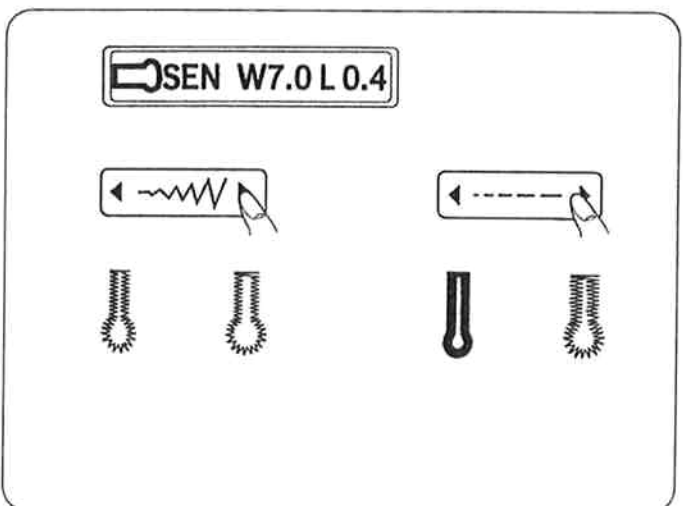
Keyhole Buttonhole

① R: Automatic buttonhole foot



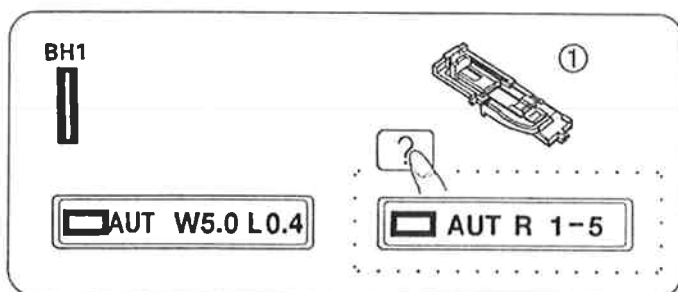
For sewing, use the same procedure as the sensor buttonhole (BH 1).

- ① Starting point
- ② Bartack



Alter the stitch length according to the fabric and thread. Change stitch width if desired.

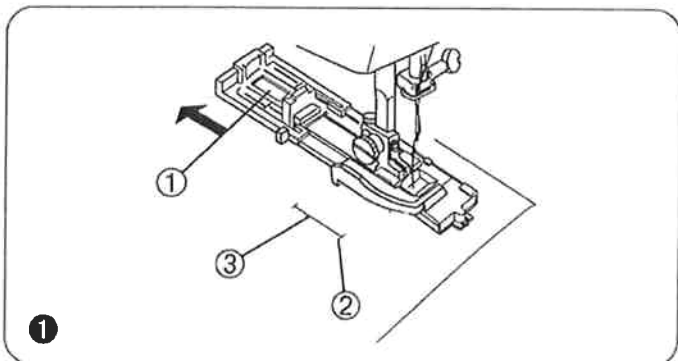
- 0.3 Lightweight fabric
(for lawn and georgette)
- 0.4 Medium weight fabric
(for gabardine, denim and wool suiting)
- 0.8 Heavyweight fabric
(for wool coating and polar fleece)



Classic Automatic Buttonhole (BH 1)

Press #9 (BH1) key **twice** to show "AUT" on the computer display screen.

- ① R: Automatic buttonhole foot

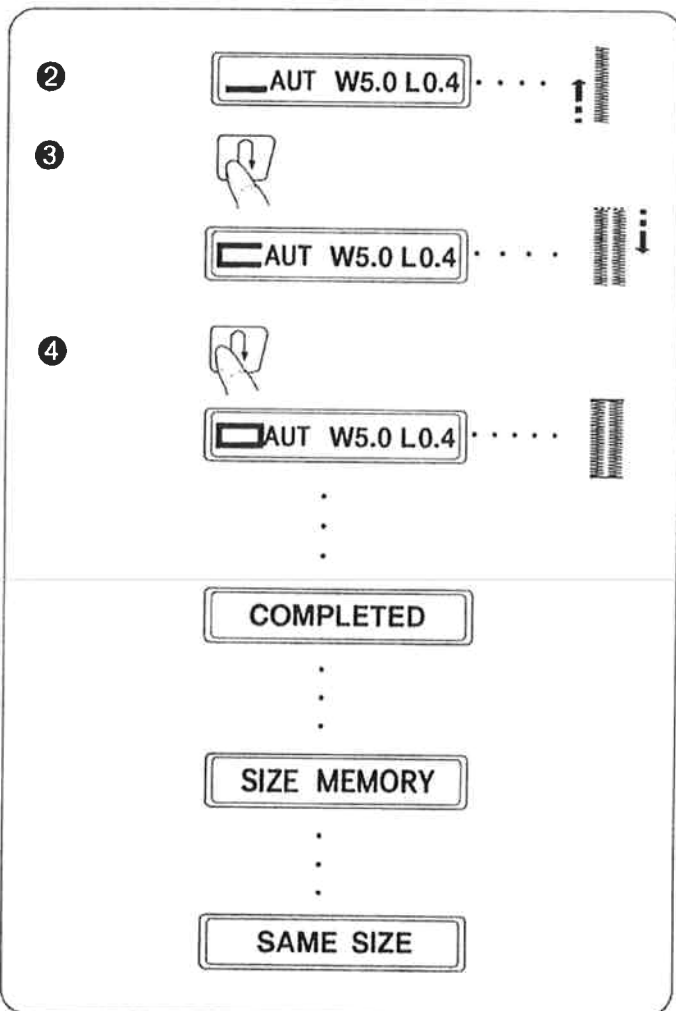


- ① Extend the button holder to the far back.

Place **both threads** to the left under the **foot**.

Insert the garment under the foot and lower the needle at the starting point. Then lower the automatic buttonhole foot.

- ① Button holder
② Starting point
③ Mark buttonhole placement



- ② Sew desired length of left side of the buttonhole and stop.

- ③ Press "Reverse" key. Press the foot control. The machine will automatically bartack and sew up the right side of the buttonhole. Stop the machine when you are just over 2 or 3 stitches opposite the first stitch on the left side.

- ④ Press "Reverse" key. Press the foot control. The machine will bartack, tie-off the stitches and stop.

To make the next buttonhole, position the fabric and press the foot control.

The machine will sew another buttonhole identical to the first each time you press the foot control.

Corded Buttonhole

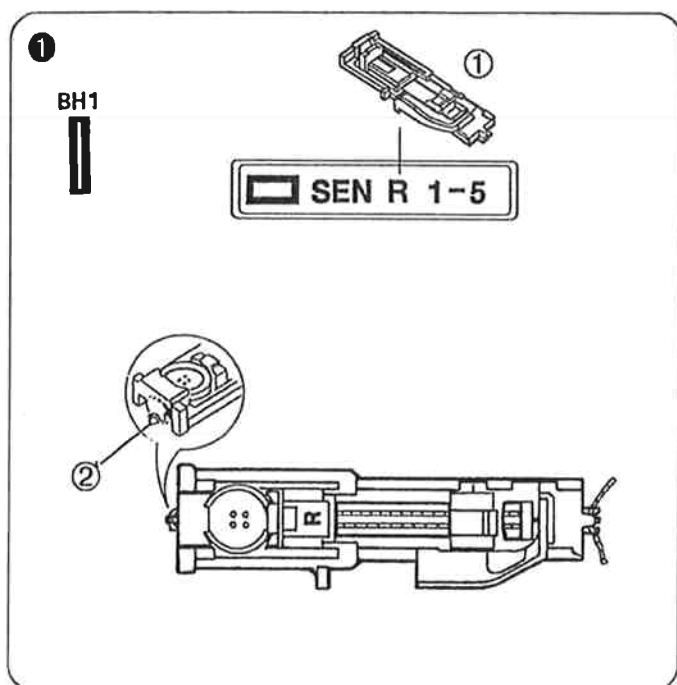
- ① Sew a corded buttonhole using the same procedure described on pages 28-30.

- Set the stitch width to match the thickness of the cording.

With the buttonhole foot raised, hook the filler cord on the spur at the back of the buttonhole foot. Bring the ends forward under the buttonhole foot.

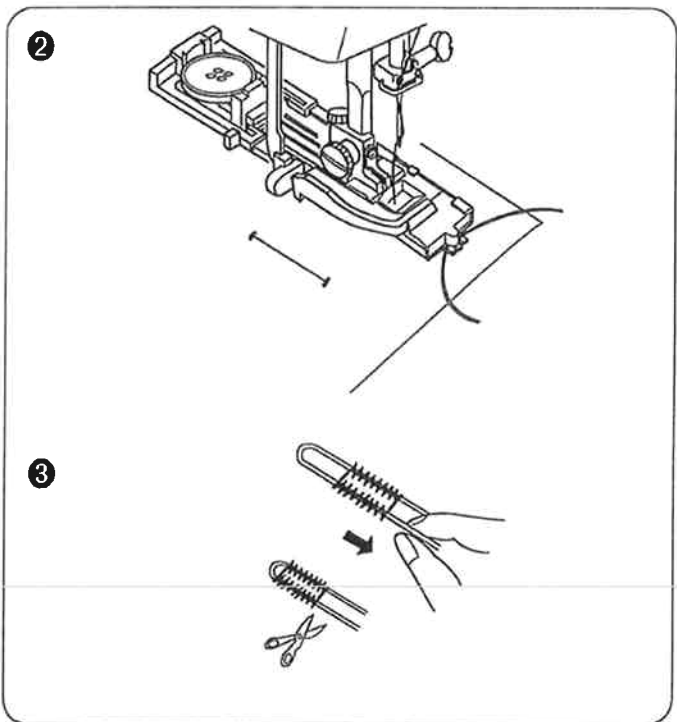
Position the cord into the forks on the front of the foot to hold them tight.

- ① R: Automatic buttonhole foot
- ② Spur



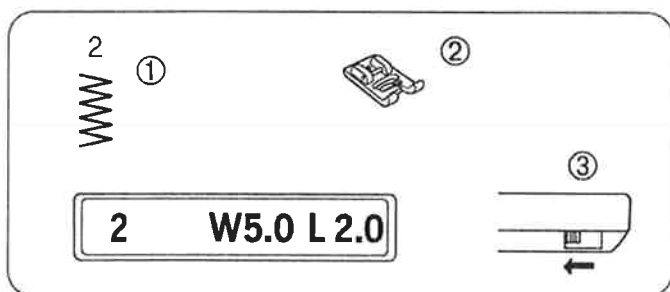
- ② Lower the needle into the garment where the buttonhole will start and lower the presser foot.

Press the foot control and slowly sew the buttonhole. Each side of the buttonhole and the bartacks will be sewn over the cord. Remove the fabric from the machine and cut only the sewing threads.



- ③ Pull the left end of the cord to tighten it. Thread the end through a darning needle, draw to the wrong side of the fabric and cut.

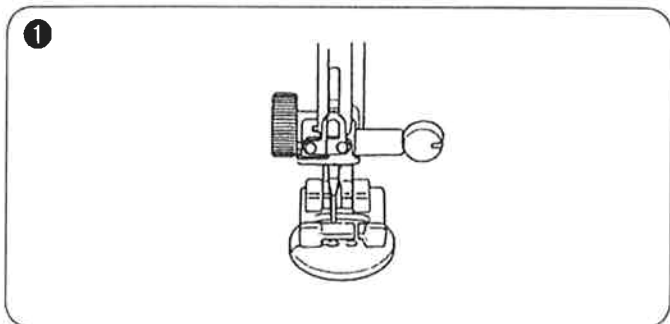
Cut open buttonhole.



How to Sew on a Button

- ① 2: Zigzag stitch
- ② F: Satin stitch foot
- ③ Drop feed dog (see page 6)

- Set the stitch width according to the position of the holes in the button.

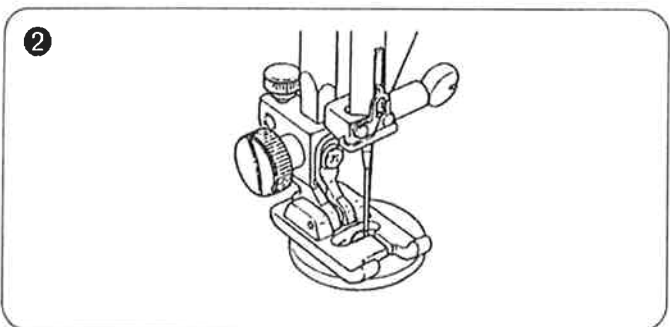


- ① Match the holes in the button to the horizontal slot on the presser foot.

Lower the foot to hold the button in place.

Turn the flywheel by hand until the needle is just above the button.

Press the  key to position the needle above the left hole of the button.



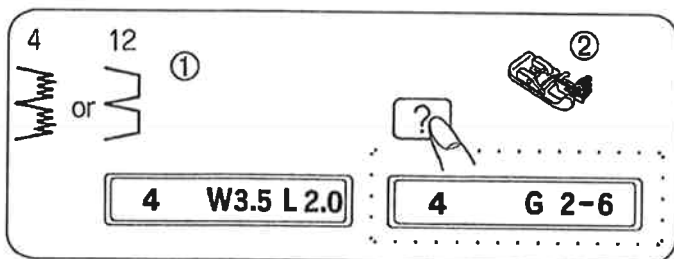
- ② Turn the flywheel to position the needle to enter the right hole of the button. Readjust the stitch width if necessary.

Stitch several times.

After you finish sewing, cut the thread but leave 10 to 15 cm (4" to 6") of thread at the button

Pull the thread to the reverse side of the fabric and tie the threads.

Raise the feed dog after sewing on buttons. (See page 6.)



Blind Hem Stitch

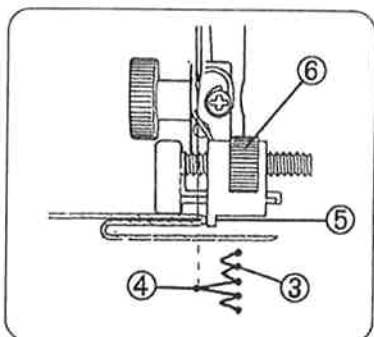
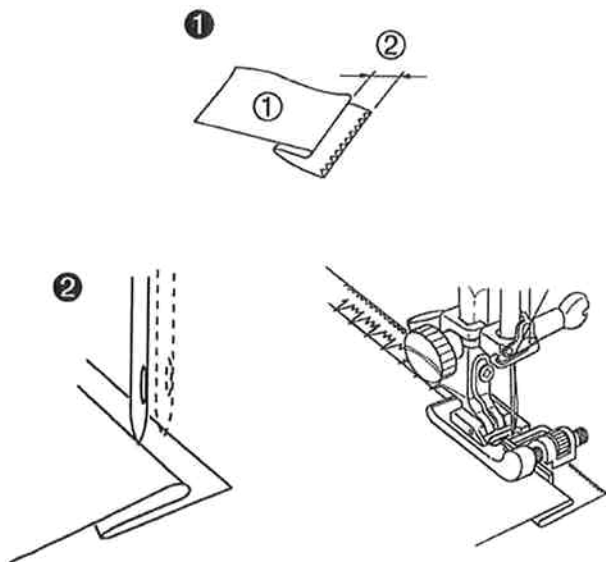
- ① 4: Stretch blind hem or
12: Woven blind hem
- ② G: Blind hem foot

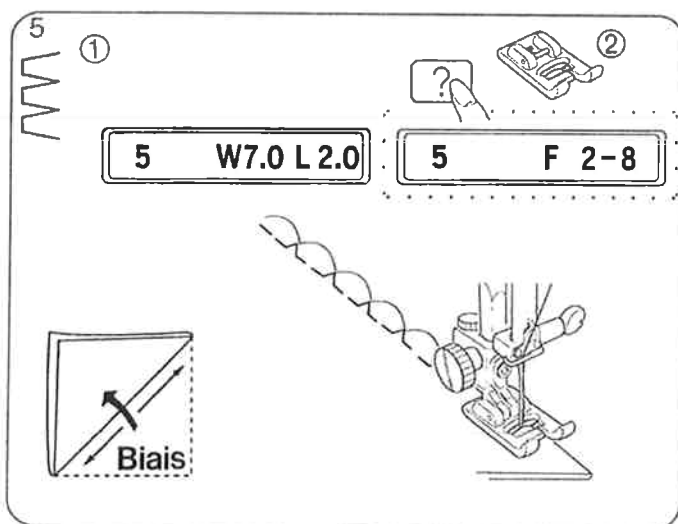
❶ Fold up the hem allowance and press. Fold under the hem toward right side of garment. Leave a 6.5 - 10 mm (1/4" to 3/8") extension at the right.

- ① Wrong side of fabric
- ② 6.5 - 10 mm (1/4" to 3/8")

❷ Position the fabric so the folded edge is to the left side of the guide. Lower the presser foot. Make sure only the widest zigzag catches one or two fibers of the fold. By turning the adjustment nut ⑥, it is possible to move the guide to the right or left.

- ③ Needle on fabric
- ④ Needle catching hem
- ⑤ Guide
- ⑥ Adjustment nut





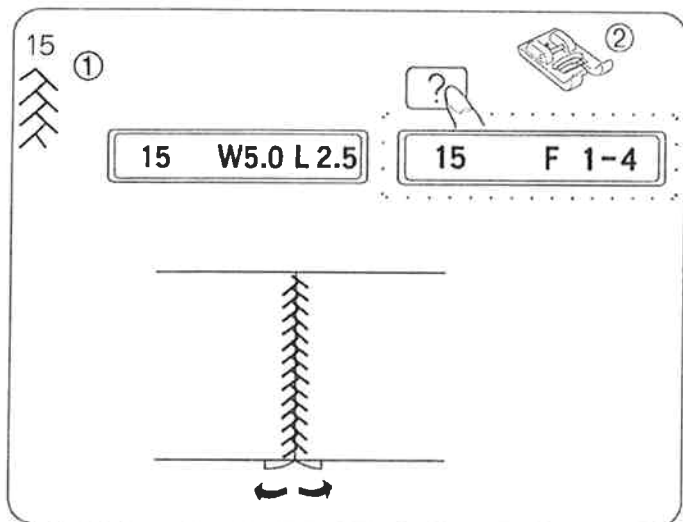
Shell Stitch

Use a lightweight fabric such as tricot. Fold and stitch on the bias. Set the stitch width and length as you desire. You may need to tighten the top thread slightly. Allow the needle to just clear the folded edge of the fabric when it swings off the fabric to the right.

If you sew rows of shell stitches, space the rows at least 1.5 cm (5/8") apart.

You can sew shell stitches in any direction on knits or soft silky wovens.

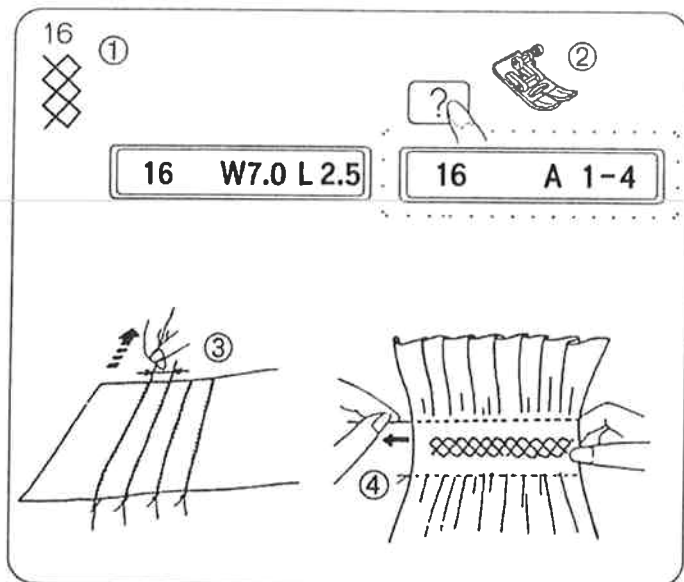
- ① 5: Shell stitch
- ② F: Satin stitch foot



Patchwork

Sew a straight stitch seam and press seam allowance open. Sew patchwork stitch on right side of garment centering it over the seam line. You may also use stitches 16 and 38.

- ① 15: Patchwork stitch
- ② F: Satin stitch foot

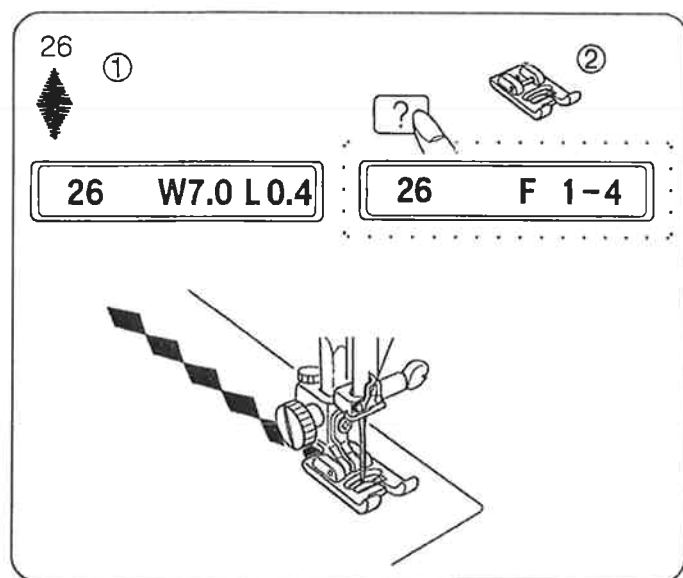


Smocking

Sew rows of straight stitches (L 4.5) approximately 1 cm (3/8") apart, across the area to be smocked. (A looser needle thread tension will make gathering easier.) Tie the threads along one edge. Pull the bobbin threads and distribute the gathers evenly. Secure the threads at the other end.

Reduce the tension and pressure if necessary and sew smocking stitch between the straight seams. Pull out the gathering stitches.

- ① 16: Smocking or honeycomb stitch
- ② A: Metal foot
- ③ Gathering lines – 1 cm (3/8") apart
- ④ Smocking stitch, remove gathering

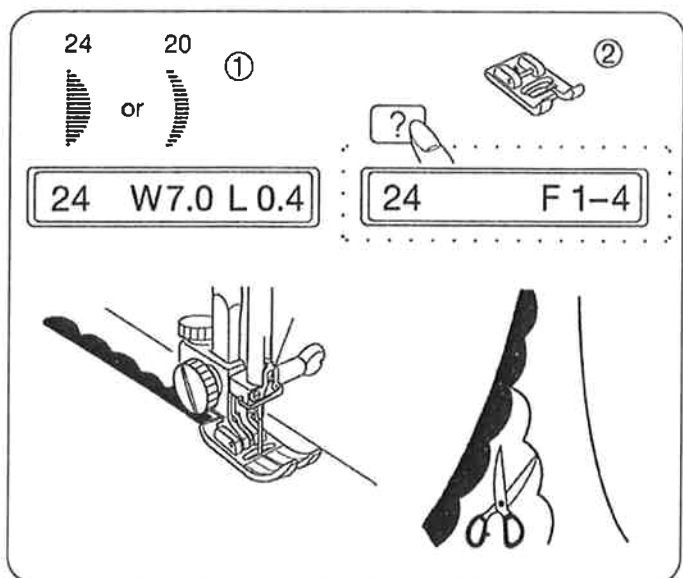


Decorative Satin Stitches

Add a decorative accent to your sewing. Express your creative talents by selecting stitches #20 through #30 or #36.

- ① 26: Diamond shape stitch
- ② F: Satin stitch foot

• Remember to use stabilizer appropriate to the fabric.



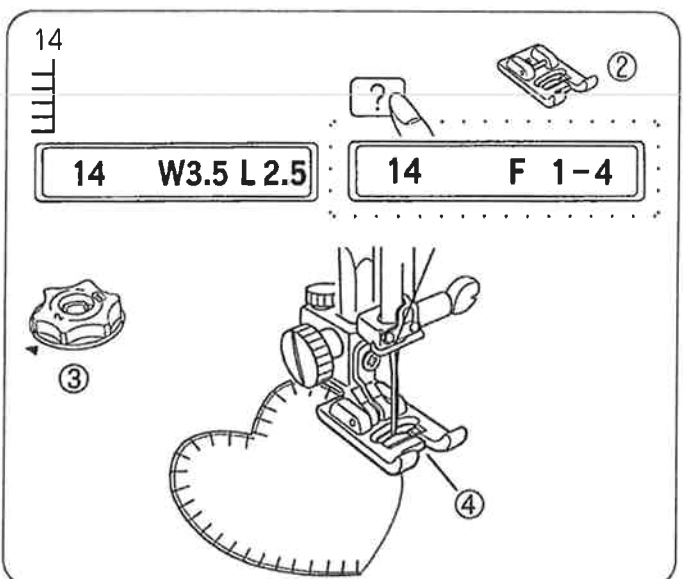
Scallop Edges

Some of the scallop motifs can be used to attractively finish the edges of collars, pockets and placemats.

To edge a collar, place interfacing between upper and under collar and sew the pattern on the seam line.

After sewing, trim fabric close to stitching taking care not to cut the scallops.

- ① 24: Scallop stitch or 20
- ② F: Satin stitch foot



Applique

In this type of applique, raw edges are folded under.

You may need to set the foot pressure dial to 2.

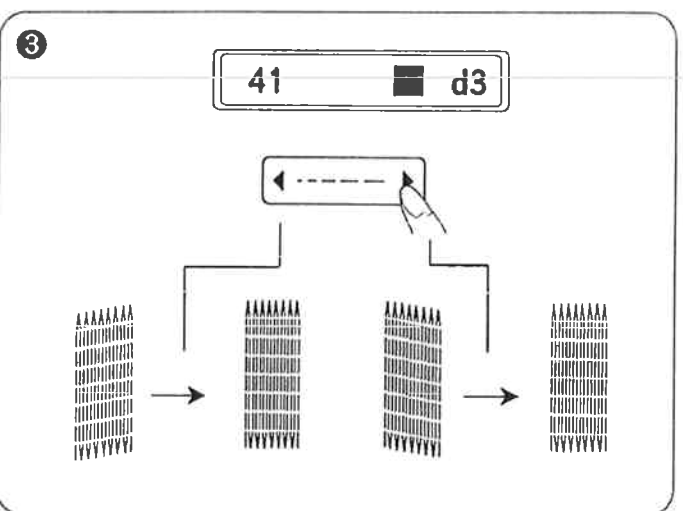
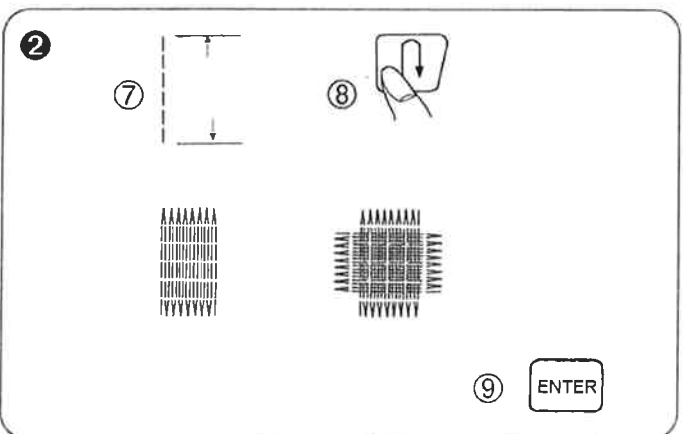
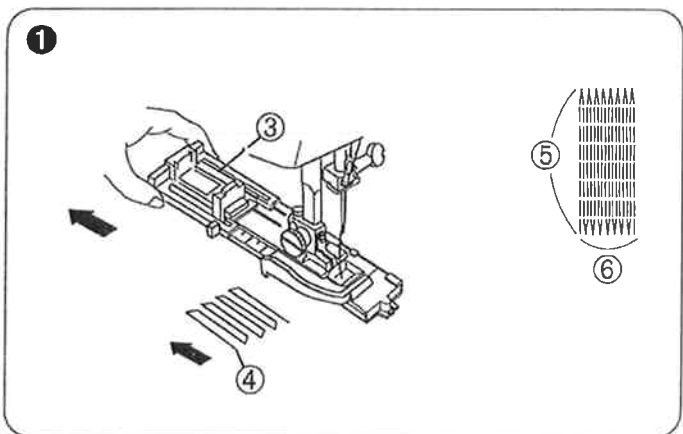
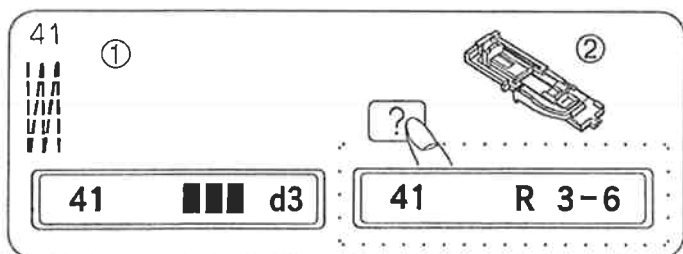
To prepare the raw edge, first cut the applique design out of paper.

Press a fusible webbing to the wrong side of the fabric, then cut the fabric slightly larger than the paper pattern.

Fold the fabric under to match paper pattern size and press only the edge to form a perfectly shaped design.

Press the applique in place and sew, guiding the slit on Foot F next to the finished edge of the applique.

- ① 14: Applique stitches
- ② F: Satin stitch foot
- ③ Foot pressure dial (2)
- ④ Slit



Darning

Automatic darning saves a lot of time. It is used for repairing very worn areas (not holes) in fabric.

- ① 41: Automatic darning
- ② R: Automatic buttonhole foot

❶ Extend the button holder to the far back. Place **both threads** to the left **under** the foot. Insert the garment under the foot and lower the needle at the starting point. Lower the foot. Sew.

- The size of one darn cycle is variable. However, the maximum stitch length is 2 cm (3/4") and the maximum stitch width is 7 mm (1/4").

- ③ Button holder
- ④ Starting point
- ⑤ Stitch length
- ⑥ Stitch width

❷ For darning a length less than 2 cm (3/4"), first stop the machine after sewing the desired length and then press the reverse button. The required length has now been determined. Now restart the machine and continue sewing until the machine stops automatically.

- ⑦ Darning stitch length
- ⑧ Reverse key

To memorize darning stitches

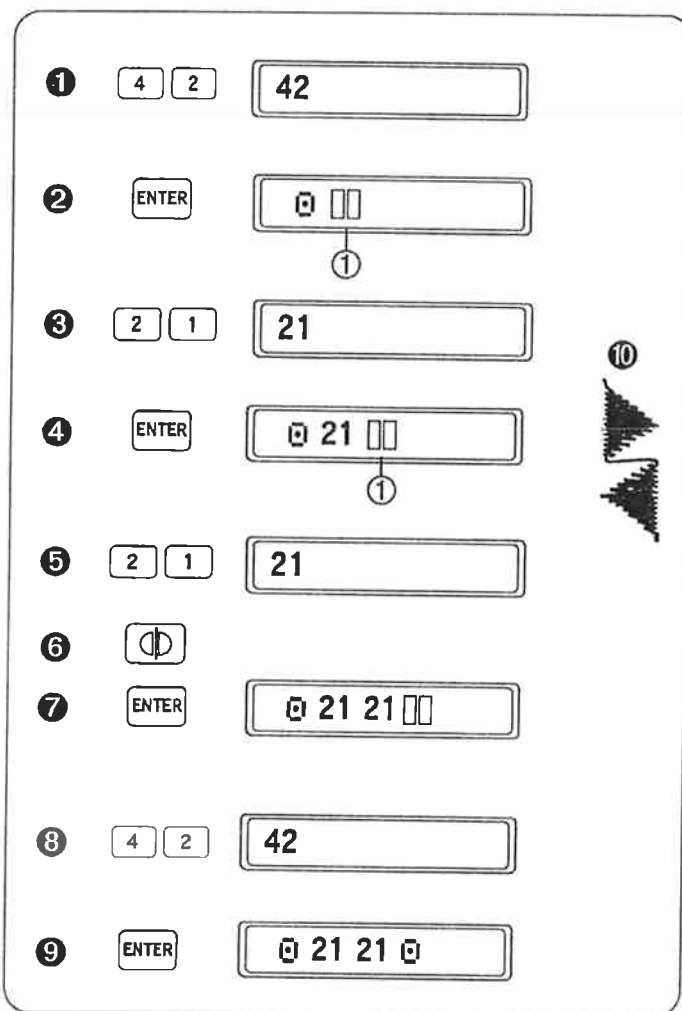
First stop the machine after sewing the desired length and then press the Enter key. The required length has now been determined and memorized. Now restart the machine and continue sewing until the machine stops automatically.

By pressing the Mirror Image key, the starting point can be changed to the right.

- ⑨ Mirror Image key

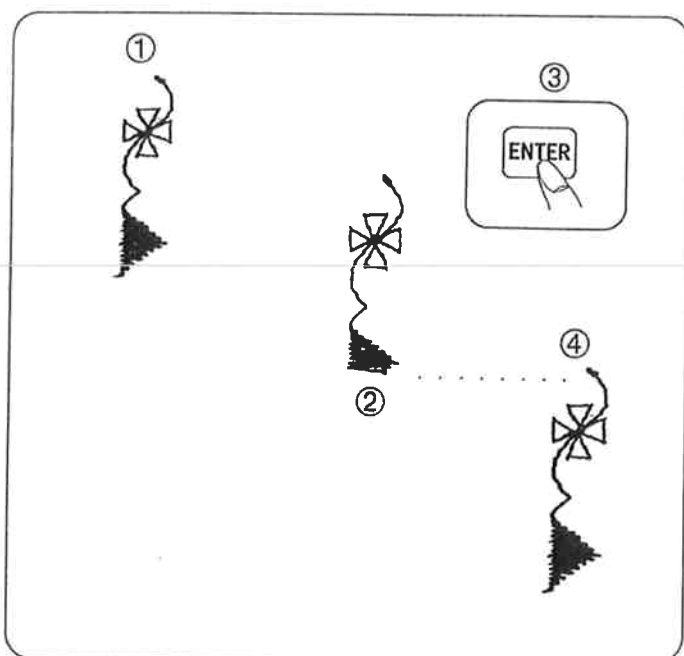
❸ To Adjust the Evenness of Darning Stitches

If one side of the darning stitch is higher or lower than the other, make them even by pressing the Stitch Length key as illustrated.



Combining Motifs with Mirror Image

- 1 Select stitch 42.
- 2 Memorize stitch 42 by pressing the Enter key.
- ① Flash
- 3 Select stitch 21.
- 4 Memorize stitch 21 by pressing the Enter key.
- 5 Select stitch 21 again.
- 6 Press the Mirror Image key.
- 7 Memorize Mirror Image stitch 21 by pressing the Enter key.
- 8 Select stitch 42.
- 9 Memorize stitch 42 by pressing the Memorize key.
- 10 Place fabric under foot and press foot control. Machine will auto-lock, sew motif, sew mirror image motif, auto-lock and stop.



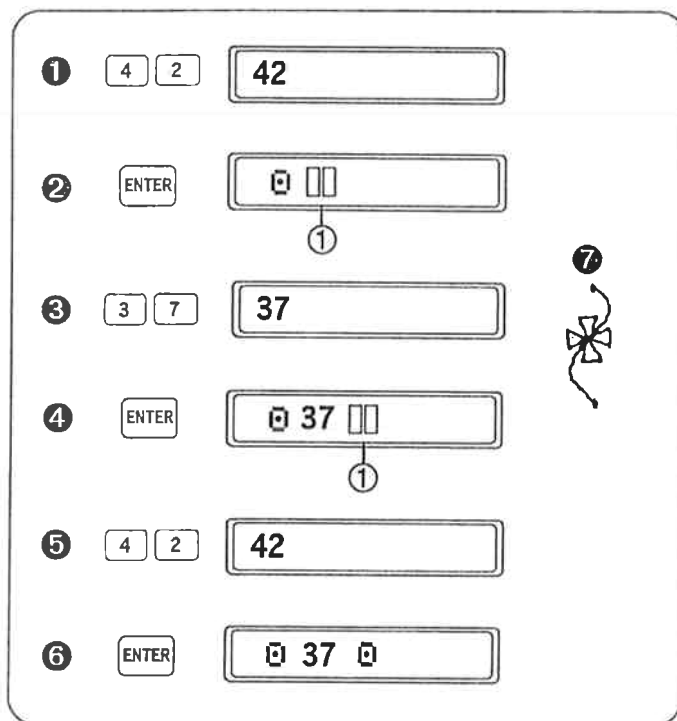
It is possible to partially sew the combined motifs and, upon realizing an error in placement, to restart the machine at the beginning of the design.

- ① Combined motif
- 2 Stop sewing upon realizing motif in wrong place.
- 3 Press the Enter key. Move fabric to correct placement.
- 4 Press the foot control. The machine sews from the beginning of the combined motif.

How to Program Decorative Stitches

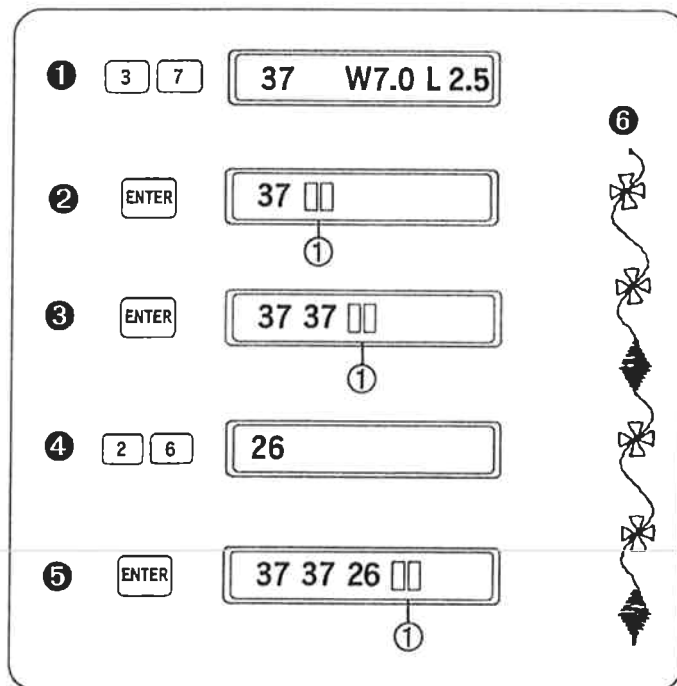
Single Motifs

- ❶ Select stitch 42
- ❷ Memorize stitch 42 by pressing the Enter key.
- ❶ Flash
- ❸ Select stitch 37.
- ❹ Memorize stitch 37 by pressing the Enter key.
- ❺ Select stitch 42.
- ❻ Memorize stitch 42 by pressing the Enter key.
- ❼ Place fabric under foot and press foot control. Machine will auto-lock, sew motif, auto-lock and stop.



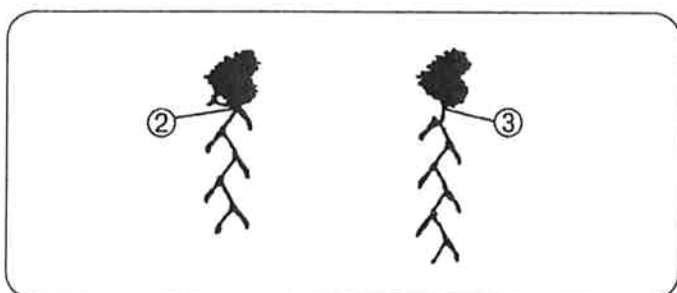
Combining Motifs

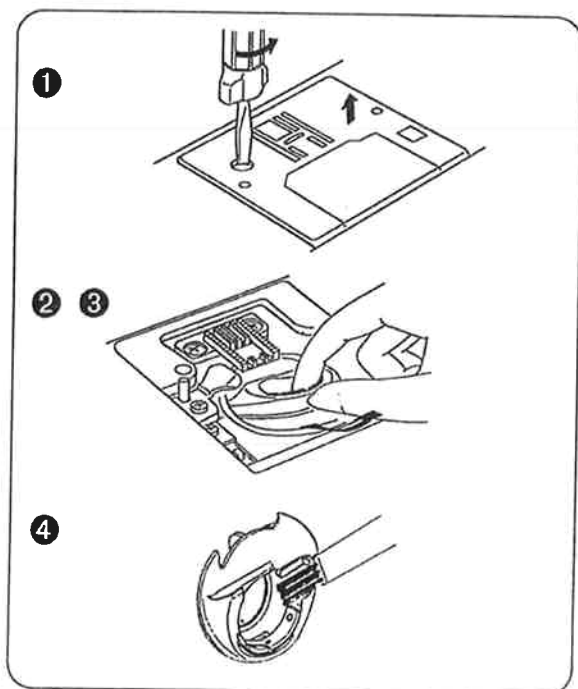
- ❶ Select stitch 37.
- ❷ Memorize stitch 37 by pressing the Enter key.
- ❶ Flash
- ❸ Memorize stitch 37 again by pressing the Enter key.
- ❹ Select stitch 26
- ❺ Memorize stitch 26 by pressing the Enter key.
- ❻ Press the foot control to sew the memorized patterns repeatedly.



HINT: When sewing two different stitches together they may overlap. Combine stitches 30 and 15. Enter one straight stitch 11 between them to add space.

- ❷ Overlapping point
- ❸ Straight stitch 11





Care of Your Machine

Press the up/down needle key until the needle is raised.

Unplug the machine before cleaning.

Do not dismantle the machine further than explained on this page.

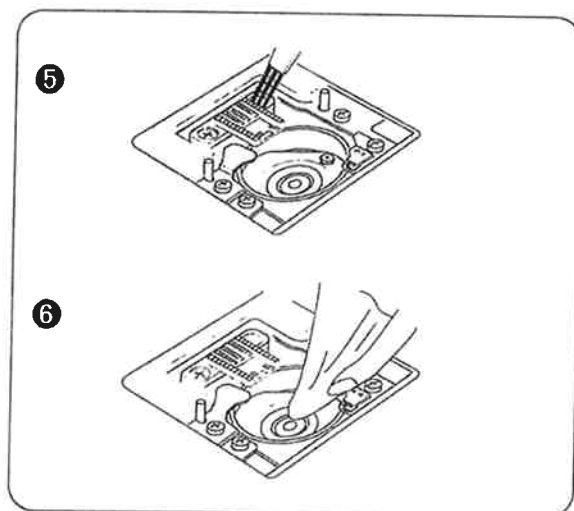
The machine is self-lubricating. However, the area around the bobbin and hook must be cleaned each time the machine has had extensive use.

Do not store the machine in a high-humidity area, near a heat radiator or in direct sunlight.

Clean the outside of the machine with a soft cloth and pure soap.

Cleaning the Hook Area and Feed Dog

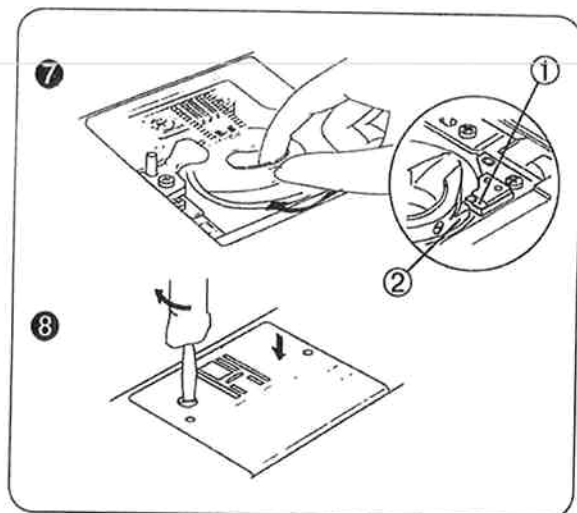
- 1 Remove the presser foot, needle and bobbin. Remove the screw on the left side of the needle plate with the screwdriver supplied with the machine.
- 2 Remove the needle plate.
- 3 Lift up the bobbin case and remove it.
- 4 Brush out dust and lint.
- 5 Clean the feed dog and hook area with the lint brush.
- 6 Wipe out gently with soft, dry cloth. (You may also use a vacuum cleaner.)



Replacing the Bobbin Case

- 7 Insert the bobbin case so that the knob fits next to the stopper in the hook area.
 - 1 Stopper
 - 2 Knob
- 8 Replace the needle plate, inserting the two needle plate guide pins into the holes in the needle plate. Replace the screw.

After cleaning, be sure to replace the needle, presser foot and bobbin.



Troubleshooting

Condition	Cause	Reference
The needle thread breaks	<ol style="list-style-type: none"> 1. The needle thread is not threaded properly. 2. The needle thread tension is too tight. 3. The needle is bent or blunt. 4. The needle is incorrectly inserted. 5. The needle thread and the bobbin thread are not set properly under (drawn to the back of) the presser foot when starting to sew. 6. The fabric is not moved to the back when sewing is finished. 7. The thread is too heavy or too fine for the needle. 	<p>Refer to page 14 Refer to page 5 Refer to page 7 Refer to page 7</p> <p>Refer to page 18 Refer to page 18 Refer to page 17</p>
The bobbin thread breaks	<ol style="list-style-type: none"> 1. The bobbin thread is not threaded properly in the bobbin case. 2. Lint has collected in the bobbin case. 3. The bobbin is damaged and doesn't turn smoothly. 	<p>Refer to page 13 Refer to page 41 Change the bobbin</p>
The needle breaks	<ol style="list-style-type: none"> 1. The needle is incorrectly inserted. 2. The needle is bent or blunt. 3. The needle clamp screw is loose. 4. The needle thread tension is too tight. 5. The fabric is not moved to the back when sewing is finished. 6. The needle is too fine for the fabric being sewn. 	<p>Refer to page 7 Refer to page 7 Refer to page 7 Refer to page 5 Refer to page 18 Refer to page 17</p>
Screen is not clear	<ol style="list-style-type: none"> 1. The lighting of the computer display screen is not adjusted properly. 	Refer to page 11
Skipped stitches	<ol style="list-style-type: none"> 1. The needle is incorrectly inserted. 2. The needle is bent or blunt. 3. The needle and/or threads are not suitable for the fabric being sewn. 4. A stretch needle is not being used for sewing stretch, very fine fabrics and synthetics. 5. The needle thread is not threaded properly. 6. The foot pressure dial is not adjusted correctly. 	<p>Refer to page 7 Refer to page 7 Refer to page 17 Refer to page 17</p> <p>Refer to page 14 Refer to page 4</p>
Seam puckering	<ol style="list-style-type: none"> 1. The needle thread tension is too tight. 2. The needle thread is not threaded properly. 3. The needle is too heavy for the fabric being sewn. 4. The stitch length is too long for the fabric. 5. The foot pressure dial is not adjusted correctly. 	<p>Refer to page 5 Refer to page 14 Refer to page 17 Make stitch tighter Refer to page 4</p>

Troubleshooting (cont'd)

Condition	Cause	Reference
The fabric is not feeding smoothly	<ol style="list-style-type: none">1. The feed dog is packed with lint.2. The foot pressure dial is not adjusted correctly.3. The stitches are too close.4. The feed dog was not raised after being lowered.	Refer to page 41 Refer to page 4 Make stitch longer Refer to page 6
Gathering	<ol style="list-style-type: none">1. The needle thread tension is too loose.2. The needle is too heavy or light for the fabric being sewn.	Refer to page 5 Refer to page 17
The machine doesn't work	<ol style="list-style-type: none">1. The machine is not plugged in.2. A thread is caught in the hook area.3. The bobbin winder spindle is still in the winding position.	Refer to page 9 Refer to page 41 Refer to page 12
Stitches are distorted	<ol style="list-style-type: none">1. The fine adjustment dial is not set properly.	Refer to page 4
The automatic buttonhole stitches are not working	<ol style="list-style-type: none">1. The stitch length is not suitable for the fabric being sewn.2. Interfacing is not being used with fabrics.	Refer to page 30-31 Refer to page 28
Noisy operation	<ol style="list-style-type: none">1. There is thread caught in the hook area.2. Lint has built up in the bobbin holder or hook area.3. Slight humming sound coming from internal motor.	Refer to page 41 Refer to page 41 Normal